FULL-LENGTH PRACTICE TESTS 9 - ANSWERS AND EXPLANATIONS

English

TIME: 35 Minutes—50 Questions

DIRECTIONS: In the five passages that follow, certain words and phrases are underlined and numbered. In the answer choices, you will find alternatives for each underlined part. Choose the best alternative, or select "NO CHANGE" if the original version is correct.

You will also find questions preceded by numbers in brackets [like this]. These questions ask about a section of the passage or the passage as a whole, such as organization, adding or deleting sentences, or overall effectiveness. These questions do not refer to a bolded portion.

For each question, choose the best answer and fill in the corresponding oval on your answer document.

Important: Read each complete passage before answering its questions. Many questions require you to read several sentences beyond the question to determine the correct answer.

PASSAGE I

Making My First Documentary Film

Last summer, I decided to make a documentary film about the closing of our town's historic movie theater. The Palace Theater had been showing (1) films since 1947, and its impending closure felt like the end of an era. I had never made a documentary before, but I knew (2) I wanted to preserve the stories and memories connected to this beloved building.

My first challenge was equipment. Professional cameras cost thousands of dollars, but I discovered I could shoot surprisingly good footage on my smartphone. I borrowed a small microphone that plugged into my phone and a portable light from my school's drama department. (3) With these basic tools, I was ready to start filming.

[4] I began by interviewing the theater's owner, Mrs. Eleanor Vasquez, who had operated the Palace for thirty years. She described the challenges of competing with multiplex cinemas and streaming services explaining (5) how audience sizes had steadily declined. Her eyes filled with tears as she talked about closing the business her parents had built.

Over the next few weeks, I interviewed dozens of people who's (6) lives had been touched by the Palace Theater. A retired couple described their first date there in 1965. A local filmmaker recalled watching classic movies every Saturday as a child. Former employees shared stories about operating the ancient projector and preparing fresh popcorn in the lobby. (7)

[8] The filming process taught me that documentary making requires patience and flexibility. Some interviews yielded powerful emotional moments, others felt flat and needed to be refilmed. (9) I learned to let conversations develop naturally rather than sticking rigidly to my prepared questions. The best stories often emerged when I simply listened.

Editing the footage proved more difficult than filming. I had accumulated over twenty hours of interviews and needed to create a thirty-minute film. Every story seemed important but I had to make difficult choices (10) about what to include. I spent countless hours arranging clips, adding music, and refining transitions.

[11] The final screening took place at the Palace Theater on its last night of operation. Over 200 people attended, many of whom had contributed to the film. Watching the documentary with this audience—hearing their laughter and seeing their tears—made all the work worthwhile. The film captured not just the building's history but the communities connection (12) to a place that had brought people together for generations.

After the screening, several people asked if I planned to make more documentaries. I hadn't considered it before, but now I couldn't imagine not continuing. (13) Documentary filmmaking had given me a way to preserve important stories and connect with my community in meaningful ways. (14) The Palace Theater may have closed, but its stories would endure through the film I had created.

[15]

(1) Which verb form correctly maintains the past perfect tense established in this sentence?

A. NO CHANGE

B. has been showing

C. had shown

D. was showing

(2) What is the correct punctuation to join these two independent clauses?

F. NO CHANGE

G. but, I knew

H. but; I knew

J. but: I knew

(3) What is the correct punctuation for this phrase?

A. NO CHANGE

B. and a portable light, from my school's drama department.

C. and, a portable light from my school's drama department.

D. and a portable, light from my school's drama department.

[4] Which of the following true statements, if added here, would most effectively introduce the focus of this paragraph?

A. Documentary films require extensive planning and preparation before filming begins.

B. The most compelling documentaries feature personal stories from real people.

C. Interviewing subjects is the most important part of documentary filmmaking.

D. Professional filmmakers often spend years developing documentary projects.

(5) What is the correct punctuation to separate these clauses?

A. NO CHANGE

B. and streaming services, explaining

C. and streaming services; explaining

D. and streaming services. Explaining

(6) Which word correctly indicates possession?

F. NO CHANGE

G. whose

H. whom's

J. who

(7) What is the correct punctuation for this phrase?

A. NO CHANGE

B. and preparing, fresh popcorn in the lobby.

C. and, preparing fresh popcorn in the lobby.

D. and preparing fresh popcorn, in the lobby.

[8] The writer is considering deleting the following sentence from this paragraph:

"Some interviews yielded powerful emotional moments, others felt flat and needed to be refilmed."

Should the sentence be kept or deleted?

F. Kept, because it provides specific examples of the challenges the writer faced during filming.

G. Kept, because it illustrates the unpredictable nature of documentary filmmaking.

H. Deleted, because it contradicts the paragraph's emphasis on patience and flexibility.

J. Deleted, because it suggests the writer was unprepared for the filming process.

(9) What is the correct way to join these two independent clauses?

A. NO CHANGE

B. moments, while others felt flat and needed to be refilmed.

C. moments others felt flat and needed to be refilmed.

D. moments; and others felt flat and needed to be refilmed.

(10) What is the correct punctuation to join these clauses?

F. NO CHANGE

G. important, but I had to make difficult choices

H. important; but I had to make difficult choices

J. important. But I had to make difficult choices

[11] At this point, the writer wants to add a sentence that would effectively transition from the editing process to the final screening. Which choice best accomplishes this goal?

A. Editing software has become much more accessible to amateur filmmakers in recent years.

B. The technical aspects of filmmaking are often underestimated by beginners.

C. After weeks of editing, the documentary was finally complete and ready to share.

D. Many documentary filmmakers prefer the editing process to the actual filming.

(12) Which form correctly shows possession?

F. NO CHANGE

G. but the community's connection

H. but the communities' connection

J. but, the community's connection

(13) What is the correct punctuation for this sentence?

A. NO CHANGE

B. but now, I couldn't imagine not continuing.

C. but, now I couldn't imagine not continuing.

D. but now I couldn't imagine, not continuing.

(14) What is the correct punctuation for this phrase?

F. NO CHANGE

G. and connect, with my community in meaningful ways.

H. and connect with my community, in meaningful ways.

J. and, connect with my community in meaningful ways.

[15] Suppose the writer's goal had been to write an essay explaining the technical aspects of documentary filmmaking. Would this essay successfully accomplish that goal?

A. Yes, because it describes the equipment needed to make a documentary film.

B. Yes, because it explains the filming and editing processes in detail.

C. No, because it focuses primarily on the personal and emotional aspects of creating the documentary.

D. No, because it does not mention any specific filmmaking techniques or terminology.

PASSAGE II

The Food Truck Revolution

My uncle Roberto quit his job as a restaurant chef three years ago to start a food truck business. At first, his family thought he was making a terrible mistake. He had worked at successful restaurants his salary

was steady (16) and he was considering offers to become a head chef. Why would he give up that security to sell tacos from a truck?

Roberto had a vision, though. He wanted to bring authentic Mexican street food to our city but without the overhead costs (17) of a traditional restaurant. A food truck would allow him to test different locations, adjust his menu quickly, and build a customer base before committing to a permanent space. (18)

The startup process proved more complicated than Roberto expected. First, he needed to purchase a truck and outfit it with commercial cooking equipment. [19] He also had to obtain multiple permits and licenses, pass health inspections, and secure parking agreements with property owners. The initial investment exceeded $75,000, most of which he borrowed from family members.

Roberto's truck, "Tacos El Rey," launched on a rainy Tuesday morning in March. The first week was discouraging; (20) only a handful of customers showed up despite Roberto's efforts to promote the business on social media. He began to wonder if his family had been right to doubt his decision. (21)

[22] However, everything changed when a food blogger discovered his truck and wrote a glowing review. Within days, lines of customers stretched down the block during lunch hours. Roberto's authentic recipes and fresh ingredients had set his food truck apart from (23) the competition. His homemade salsas, slow-cooked meats, and handmade tortillas reminded customers of food they'd eaten (24) while traveling in Mexico.

Success brought new challenges. Roberto had to hire additional staff to manage the increased demand working (25) fifteen-hour days six days a week. The truck's small kitchen made it difficult to prepare enough food for the crowds. [26] Despite these challenges, Roberto remained committed to quality, refusing to cut corners or use pre-made ingredients.

Eventually, Roberto's success attracted attention from investors who wanted to help him expand his business. (27) He opened two additional food trucks, each specializing in different regional Mexican cuisines. His original truck remains his favorite though (28) because it represents the risks he took and the dreams he pursued.

Roberto's story illustrates a broader trend in the food industry. Food trucks have become increasingly popular they offer entrepreneurs a lower-cost entry (29) into the restaurant business. Many successful restaurants began as food trucks, allowing owners to build reputations and customer loyalty before investing in permanent locations.

[30] The food truck revolution has also benefited customers. Food trucks bring diverse culinary options to neighborhoods that might not otherwise have access to certain cuisines. They create vibrant food scenes at festivals, markets, and events. And they provide platforms for talented chefs like Roberto to showcase their skills without the financial burden of traditional restaurants.

(16) What is the correct way to fix this run-on sentence?

F. NO CHANGE

G. successful restaurants, his salary was steady

H. successful restaurants; his salary was steady

J. successful restaurants. His salary was steady

(17) What is the correct punctuation to introduce this contrasting idea?

A. NO CHANGE

B. to our city, but without the overhead costs

C. to our city but, without the overhead costs

D. to our city; but without the overhead costs

(18) What is the correct punctuation for this final item in a series?

F. NO CHANGE

G. and build a customer base, before committing to a permanent space.

H. and, build a customer base before committing to a permanent space.

J. and build a customer base before committing, to a permanent space.

[19] The writer is considering adding the following sentence at this point:

"Commercial food trucks can cost anywhere from $50,000 to $200,000 depending on size and equipment."

Should the writer make this addition?

A. Yes, because it provides specific cost information that supports the paragraph's discussion of startup expenses.

B. Yes, because it explains why Roberto needed to borrow money from family members.

C. No, because it contradicts the statement that the total investment exceeded $75,000.

D. No, because it shifts focus away from Roberto's specific experience to general information about food trucks.

(20) What is the correct punctuation to separate these clauses?

F. NO CHANGE

G. March, the first week was discouraging;

H. March. The first week was discouraging,

J. March; the first week was discouraging,

(21) Which verb tense correctly maintains consistency with the narrative?

A. NO CHANGE

B. have been right to doubt his decision.

C. were right to doubt his decision.

D. are right to doubt his decision.

[22] At this point, the writer wants to emphasize the dramatic change in Roberto's fortunes. Which choice most effectively accomplishes this goal?

F. NO CHANGE (However, everything changed when a food blogger discovered his truck and wrote a glowing review.)

G. A food blogger eventually discovered Roberto's truck and wrote about it.

H. Roberto's business improved after receiving some positive publicity.

J. Things got better when someone wrote about the truck online.

(23) Which verb tense correctly describes this past action and its results?

A. NO CHANGE

B. set his food truck apart from

C. has set his food truck apart from

D. was setting his food truck apart from

(24) Which contraction is appropriate in this context?

F. NO CHANGE

G. they'd ate

H. they had eaten

J. they have eaten

(25) What is the correct punctuation to connect these related ideas?

A. NO CHANGE

B. to manage the increased demand, working

C. to manage the increased demand; working

D. to manage the increased demand. Working

[26] The writer wants to add a sentence here that provides a specific example of the challenges mentioned. Which choice best accomplishes this goal?

F. On busy days, the truck would run out of ingredients by 2 PM, forcing Roberto to close early and turn away customers.

G. Running a food truck requires long hours and hard work from everyone involved.

H. Many food truck owners face similar challenges when their businesses become successful.

J. Roberto had always known that success would bring its own set of problems.

(27) What is the correct punctuation for this restrictive clause?

A. NO CHANGE

B. who, wanted to help him expand his business.

C. who wanted to help him, expand his business.

D. who wanted to help him expand, his business.

(28) Where should the comma be placed in this sentence?

F. NO CHANGE

G. His original truck, remains his favorite though

H. His original truck remains his favorite, though

J. His original truck remains, his favorite though

(29) What is the correct way to fix this run-on sentence?

A. NO CHANGE

B. popular; they offer entrepreneurs a lower-cost entry

C. popular, they offer entrepreneurs a lower-cost entry

D. popular they offer entrepreneurs, a lower-cost entry

[30] Which of the following sentences, if added at the beginning of this paragraph, would provide the most effective transition from the previous paragraph?

F. Food trucks face many regulations and restrictions in most cities.

G. Today, Roberto's success story is just one example of the food truck industry's growth.

H. The equipment needed to run a food truck has improved significantly in recent years.

J. Many restaurant critics now take food trucks as seriously as traditional restaurants.

PASSAGE III

Learning Chess from My Grandfather

Every Sunday afternoon throughout my childhood, I sat across from my grandfather at his kitchen table learning the ancient game of chess. (31) The pieces were carved from wood, smooth and heavy in my hands worn (32) from decades of use. My grandfather had learned chess as a boy in Russia, and he taught me the same way his father had taught him: patiently, methodically, and without ever letting me win. (33)

[34] In the beginning, I found chess frustrating. The rules seemed arbitrary, the strategy incomprehensible. Why couldn't the pawn move backward? Why did the knight move in that strange L-shape? My grandfather explained each rule but he never simplified the game (35) to make it easier for me. "Chess teaches you to think ahead," he would say, "and life doesn't give you simplified versions."

As months passed, I began to understand the logic behind the moves. Chess wasn't about memorizing rules it was (36) about recognizing patterns and anticipating consequences. Every move created new possibilities and closed off others. The game taught me to consider not just my next move but my opponents likely responses (37) and how I would counter them.

My grandfather rarely praised my play, but when he did, his words carried weight. (38) I remember the first time I successfully executed a strategy we'd discussed a fork that threatened both his queen and rook. (39) He studied the board for a long moment, then looked at me with a slight smile. "Good," he said simply, but I felt as if I'd won (40) a championship.

[41] Beyond the game itself, those Sunday afternoons taught me about patience and concentration. In a world of instant gratification, chess demanded sustained attention. A single game could last two hours, requiring me to focus despite distractions. This discipline later helped me in school, particularly in mathematics and science, where complex problems required the same methodical thinking chess had trained.

My grandfather passed away when I was sixteen. At his funeral, I learned things (42) about his life I'd never known. He had been a mathematics professor in Russia, fled during political upheaval, and rebuilt

his life in America. He had experienced losses I couldn't imagine, yet he had faced them with (43) the same calm strategic thinking he brought to chess.

Now I teach chess to elementary school students at our local community center. [44] I use my grandfather's approach: I never simplify the game, never let them win, and always challenge them to think several moves ahead. When students get frustrated, I share my grandfather's wisdom: "Chess teaches you to think ahead, and life doesn't give you simplified versions." (45)

The wooden chess set sits on my bookshelf now, its pieces still smooth and heavy in my hands. (46) Sometimes I set up the board and play through famous games, studying the moves of grandmasters. But more often, I think about those Sunday afternoons and the patient man whom taught me that the most valuable lessons come (47) from taking time, thinking carefully, and never taking the easy path.

[48]

(31) What is the correct punctuation for this participial phrase?

A. NO CHANGE

B. learning, the ancient game of chess.

C. learning the ancient game, of chess.

D. learning the ancient game of chess,

(32) What is the correct way to structure this descriptive phrase?

F. NO CHANGE

G. smooth and heavy in my hands, worn

H. smooth and heavy, in my hands worn

J. smooth, and heavy in my hands worn

(33) What is the correct punctuation for this list of adverbs?

A. NO CHANGE

B. patiently methodically and without ever letting me win.

C. patiently, methodically and, without ever letting me win.

D. patiently, methodically, and, without ever letting me win.

[34] The writer is considering adding the following sentence at this point:

"Chess is one of the oldest and most popular strategy games in the world, with origins dating back over 1,500 years."

Should the writer make this addition?

F. Yes, because it provides important historical context for understanding the game.

G. Yes, because it explains why the grandfather valued chess so highly.

H. No, because it interrupts the personal narrative with unnecessary background information.

J. No, because the information contradicts details provided later in the passage.

(35) What is the correct punctuation to join these contrasting clauses?

A. NO CHANGE

B. but, he never simplified the game

C. but he never simplified, the game

D. but he never, simplified the game

(36) What is the correct way to fix this run-on sentence?

F. NO CHANGE

G. Chess wasn't about memorizing rules; it was

H. Chess wasn't about memorizing rules, it was

J. Chess wasn't about memorizing rules: it was

(37) Which form correctly shows possession?

A. NO CHANGE

B. but my opponent's likely responses

C. but my opponents' likely responses

D. but my opponents likely response's

(38) What is the correct punctuation to join these clauses?

F. NO CHANGE

G. but when he did; his words carried weight.

H. but, when he did, his words carried weight.

J. but when he did his words carried weight.

(39) What is the correct way to punctuate this appositive phrase?

A. NO CHANGE

B. a fork that threatened, both his queen and rook.

C. a fork, that threatened both his queen and rook.

D. a fork that threatened both his queen, and rook.

(40) Which verb form correctly maintains the conditional mood?

F. NO CHANGE

G. I had felt as if I'd won

H. I feel as if I'd won

J. I have felt as if I won

[41] Which of the following sentences, if added here, would provide the most effective topic sentence for this paragraph?

A. Chess has been shown to improve academic performance in multiple studies.

B. Many schools now include chess programs in their curricula.

C. The skills I developed through chess extended far beyond the game board.

D. My grandfather believed that chess was the best way to develop critical thinking.

(42) Which phrase most effectively emphasizes the narrator's surprise?

F. NO CHANGE

G. I discovered information

H. I was told details

J. I heard stories

(43) What is the correct punctuation and structure for this phrase?

A. NO CHANGE

B. them, with

C. them; with

D. them. With

[44] The writer is considering deleting the following sentence from this paragraph:

"I use my grandfather's approach: I never simplify the game, never let them win, and always challenge them to think several moves ahead."

Should the sentence be kept or deleted?

F. Kept, because it connects the narrator's current teaching to the lessons learned from his grandfather.

G. Kept, because it provides specific details about how chess is taught to children.

H. Deleted, because it repeats information already provided earlier in the passage.

J. Deleted, because it contradicts modern educational approaches to teaching chess.

(45) What is the correct punctuation for this quoted material?

A. NO CHANGE

B. "Chess teaches you to think ahead, and life doesn't give you simplified versions".

C. "Chess teaches you to think ahead and life doesn't give you simplified versions."

D. "Chess teaches you to think ahead; and life doesn't give you simplified versions."

(46) What is the correct punctuation to connect these clauses?

F. NO CHANGE

G. its pieces, still smooth and heavy in my hands.

H. its pieces still smooth, and heavy in my hands.

J. its pieces still smooth and heavy, in my hands.

(47) Which pronoun correctly functions as the subject of this relative clause?

A. NO CHANGE

B. who taught me that the most valuable lessons come

C. that taught me that the most valuable lessons come

D. which taught me that the most valuable lessons come

[48] Suppose the writer's primary purpose had been to write an essay analyzing the cognitive benefits of playing chess. Would this essay accomplish that purpose?

F. Yes, because it explains how chess improved the narrator's academic performance.

G. Yes, because it describes specific thinking skills developed through chess.

H. No, because it focuses primarily on the personal relationship between the narrator and his grandfather.

J. No, because it does not provide any scientific evidence about chess and cognition.

PASSAGE IV

The Rise of Community Gardens

In 2019, a group of neighbors in our community decided to transform an abandoned lot into a community garden. The lot had been vacant for years, filled with weeds broken glass and debris. (49) Most people walked past it without a second glance, seeing only blight. But Maria Chen, a retired teacher who lived nearby, saw potential.

Maria began by researching community gardens in other cities. She learned about their benefits including (50) increased access to fresh produce, opportunities for social connection, and improved neighborhood aesthetics. She discovered that community gardens often become gathering places that strengthen neighborhoods and improve residents' quality of life.

(49) What is the correct punctuation for this list?

A. NO CHANGE

B. filled with weeds, broken glass, and debris.

C. filled with weeds, broken glass and, debris.

D. filled with, weeds, broken glass, and debris.

(50) What is the correct punctuation for this introductory phrase?

F. NO CHANGE

G. their benefits, including

H. their benefits; including

J. their benefits: including

Mathematics

TIME: 50 minutes for 45 questions

DIRECTIONS: Each question has four answer choices. Choose the best answer for each question and shade the corresponding oval on your answer sheet.

1. What is the value of $9 \times 6 - 3 \times 5$?

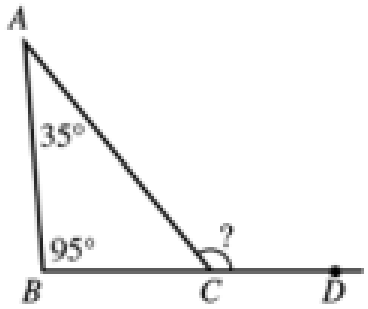
A. 270

B. 39

C. 45

D. 33

2. In the figure below, ∠BAC measures 35°, ∠ABC measures 95°, and points B, C, and D are collinear. What is the measure of ∠ACD?



F. 95°

G. 125°

H. 130°

J. 140°

K. 145°

3. If $x + 12 = 27$, what is the value of x?

A. 15

B. 39

C. 12

D. 27

4. A jacket originally priced at $80 is marked down by 30%. What is the sale price in dollars?

F. $24

G. $50

H. $56

J. $77

5. What is the slope of the line passing through the points (3, 7) and (9, 19)?

A. 4

B. 6

C. 2

D. 3

6. In the equation y = 5x - 8, what is the y-intercept?

F. -8

G. 5

H. 8

J. -5

7. What is 35% of 200?

A. 35

B. 70

C. 65

D. 75

8. A rectangle has a length of 18 feet and a width of 7 feet. What is its area in square feet?

F. 25

G. 50

H. 116

J. 126

9. If $h(x) = 4x^2 - 5$, what is $h(2)$?

A. 3

B. 11

C. 13

D. 11

10. What is the value of $\sqrt{100} + \sqrt{36}$?

F. $\sqrt{136}$

G. 16

H. 14

J. 12

11. One morning at a coffee shop, each customer ordered either decaf or regular coffee, and each ordered it either with milk or without milk. The number of customers who ordered each type of coffee with or without milk is shown in the table below.

Order	Decaf	Regular	Total
With milk	12	8	20
Without milk	6	10	16
Total	18	18	36

A customer will be randomly selected from all the customers for a prize. What is the probability that the customer will have ordered a regular coffee without milk?

A. 5/6

B. 5/9

C. 1/2

D. 1/3

E. 5/6

12. A triangle has angles measuring 45°, 75°, and x°. What is the value of x?

F. 50

G. 70

H. 60

J. 80

13. What is the value of 3^4?

A. 81

B. 12

C. 64

D. 27

14. If $6(x + 3) = 48$, what is the value of x?

F. 5

G. 6

H. 9

J. 5

15. What is the perimeter of a square with side length 13 meters?

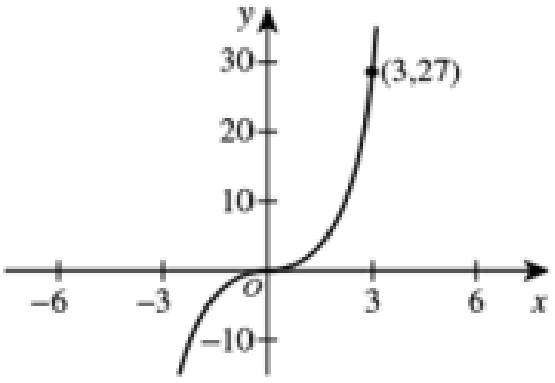
A. 26 m

B. 52 m

C. 169 m

D. 39 m

16. The point (3,27) is labeled on the graph of $f(x) = x^3$ in the standard (x,y) coordinate plane below. The graph of f(x) will be translated 3 coordinate units to the left. Which of the following points will be on the image of the graph after the translation?



F. (0,27)

G. (3,24)

H. (3,27)

J. (3,30)

K. (6,27)

17. If $a = -2$, what is the value of $3a^2 + 4a - 6$?

A. -2

B. 8

C. 10

D. -2

18. Which of the following is equivalent to $12x - 5x + 3x$?

F. 4x

G. 14x

H. 10x

J. 20x

19. If y varies directly with x, and $y = 18$ when $x = 3$, what is y when $x = 9$?

A. 54

B. 27

C. 36

D. 45

20. What is the area of a circle with radius 6 inches? (Use $\pi \approx 3.14$)

F. 18.84 in^2

G. 113.04 in^2

H. 37.68 in^2

J. 226.08 in^2

21. If $|2x - 8| = 12$, what are all possible values of x?

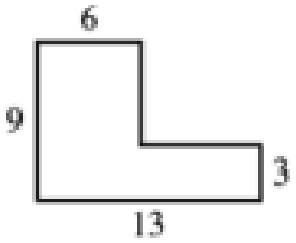
A. 2 and 10

B. -2 and 10

C. -2 and 10

D. 4 and 12

22. In the figure shown below, all angles are right angles, and the side lengths given are in centimeters. What is the area, in square centimeters, of the figure?



F. 42

G. 75

H. 93

J. 99

K. 117

23. A car travels 285 miles in 5 hours. What is the average speed in miles per hour?

A. 55 mph

B. 57 mph

C. 60 mph

D. 50 mph

24. What is the value of $\sin(30°)$?

F. $1/2$

G. $\sqrt{3}/2$

H. 1

J. $\sqrt{2}/2$

25. If the sides of a right triangle are 8, 15, and 17, what is the length of the hypotenuse?

A. 8

B. 15

C. 23

D. 17

26. Which expression is equivalent to $4(2x + 3) - 7$?

F. $8x - 4$

G. $8x + 5$

H. $8x + 5$

J. $8x + 19$

27. What is the value of $\log_2(64)$?

A. 6

B. 8

C. 32

D. 4

28. A cube has edges of length 4 centimeters. What is its volume in cubic centimeters?

F. 16

G. 64

H. 48

J. 24

29. If $p(x) = x^2 + 6x - 1$, what is $p(-3)$?

A. 26

B. -10

C. -10

D. 8

30. What is the sum of the interior angles of an octagon?

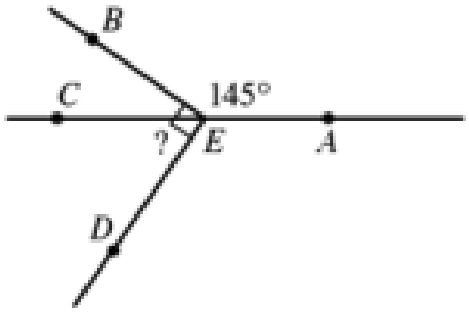
F. 720°

G. 900°

H. 1080°

J. 1080°

31. In the figure below, E is on line segment CD, and the measures of ∠BED and ∠AEB are 90° and 145°, respectively. If it can be determined, what is the measure of ∠CEB?



A. 35°

B. 45°

C. 55°

D. 90°

E. Cannot be determined from the given information

32. Which equation represents a line perpendicular to $y = -2x + 3$?

F. $y = 1/2x + 1$

G. $y = -2x - 5$

H. $y = 2x + 4$

J. $y = -1/2x + 2$

33. If $4^x = 256$, what is the value of x?

A. 8

B. 64

C. 16

D. 4

34. What is the value of $\cos(60°)$?

F. $\sqrt{3}/2$

G. 1

H. 1/2

J. $\sqrt{2}/2$

35. A rectangular prism has dimensions 5 cm × 4 cm × 7 cm. What is its volume in cubic centimeters?

A. 140

B. 35

C. 105

D. 16

36. If a sequence follows the pattern 2, 8, 32, 128, ..., what is the 6th term?

F. 256

G. 2048

H. 512

J. 1024

37. What is the slope of a line perpendicular to a line with slope 5?

A. 5

B. -5

C. -1/5

D. 1/5

38. If $2x + 7y = 34$ and $x = 6$, what is the value of y?

F. 4

G. 2

H. 5

J. 3

39. What is the midpoint of the line segment connecting (-3, 8) and (5, 14)?

A. (2, 22)

B. (1, 11)

C. (4, 6)

D. (8, 6)

40. A cylinder has a radius of 5 inches and a height of 12 inches. What is its volume in cubic inches? (Use $\pi \approx 3.14$)

F. 942

G. 314

H. 471

J. 188.4

41. If $x^2 + 5x - 24 = 0$, what are the solutions for x?

A. 3 and -8

B. 4 and -6

C. 6 and -4

D. -3 and 8

42. What is the value of tan(45°)?

F. $\sqrt{3}$

G. $\sqrt{2}/2$

H. 1

J. 1/2

43. A line passes through point (4, -3) with slope 2. What is the equation of this line in slope-intercept form?

A. $y = 2x - 11$

B. $y = 2x + 5$

C. $y = 2x - 3$

D. $y = 2x + 1$

44. The measures of two supplementary angles are in the ratio 2:3. What is the measure of the larger angle?

F. 72°

G. 108°

H. 120°

J. 90°

45. What is the distance from the origin to the point (6, 8) on the coordinate plane?

A. 14

B. 2

C. 10

D. 12

Reading

TIME: 40 minutes for 36 questions

DIRECTIONS: Each of the four passages in this section is followed by ten questions. Answer each question based on what is stated or implied in the passage and shade the corresponding oval on your answer sheet.

PASSAGE I — LITERARY NARRATIVE

This passage is adapted from a contemporary novel about a young woman learning traditional woodworking from her uncle.

When my parents sent me to spend the summer with Uncle James in rural Vermont, they called it "an opportunity for personal growth." I called it exile. At seventeen, I had imagined a summer of beach trips and concerts with friends, not eight weeks in a workshop that smelled of sawdust and linseed oil, learning to shape wood with tools that looked like they belonged in a museum.

Uncle James was my father's older brother, a man who had walked away from a promising career in corporate law to become a furniture maker. My father spoke of this decision with a mixture of admiration and pity, the way you might discuss someone who had survived a terrible accident. "James could have been a partner," he would say, shaking his head. "Instead, he makes chairs."

But James made more than chairs. His workshop, a converted barn behind his small house, was filled with pieces in various stages of completion—tables with legs that curved like tree branches, cabinets whose doors fit so perfectly they seemed to seal with a whisper, rocking chairs that moved as if suspended in water rather than resting on wooden runners. Each piece was unique, shaped by hand with tools whose names I didn't know: spokeshaves, drawknives, mortise chisels, bench planes.

On my first morning, James handed me a piece of cherry wood, rough and unfinished. "This will be a spoon," he said. "By the end of summer, you'll have made a dozen of them, and the last one will be the first one worth keeping."

I looked at the irregular block of wood, then at the small curved knife he'd placed in my other hand. "How do I start?"

"You start by looking," he said. **"The spoon's already in there**. Your job isn't to make it—it's to reveal it. The wood will tell you what it wants to be if you pay attention."

This seemed like the kind of mystical nonsense that made my father roll his eyes, but I began carving, clumsily at first, the knife slipping and catching, leaving gouges where I wanted smooth curves. James watched without correcting me. When I'd reduced the cherry block to a lopsided disaster, he simply handed me another piece of wood. "Again," he said.

By the end of the first week, I had seven misshapen objects that barely resembled spoons. My hands were covered in small cuts, and my shoulders ached from hunching over the workbench. I began to understand why my father had fled this world for air-conditioned offices and steady paychecks. The precision required was maddening—a single careless cut could ruin hours of work.

But something strange was happening. I found myself waking early, eager to get to the workshop. The smell of wood, which had seemed oppressive that first day, became comforting. I began to notice things I'd never paid attention to before: how different woods had different grains, how a board cut one way would split easily while another cut would hold firm, how morning light falling through the workshop windows illuminated the dust motes in patterns that shifted throughout the day.

James rarely gave direct instruction. Instead, he worked alongside me, and I learned by watching. I saw how he held his body when planing a board, distributing force evenly so the blade took paper-thin shavings rather than digging in. I noticed how he ran his fingers along a surface, his eyes closed, detecting imperfections I couldn't see. I observed how he selected wood, examining grain and color and texture, rejecting pieces that others might find perfectly acceptable.

"Why isn't that board good enough?" I asked once, watching him set aside a piece of oak that looked flawless to me.

He ran his thumb along the grain. "See how the lines aren't quite parallel here? That's tension in the wood. It was probably cut from a tree that grew leaning, compensating for wind or slope. If I use it, the piece will warp over time. The stress is already there, invisible. It'll reveal itself eventually."

It was the longest explanation he'd given me about anything, and it contained a truth I felt more than understood. We weren't just making objects—we were collaborating with material that had its own history, its own internal logic. The wood had grown for decades before anyone cut it, had responded to seasons

and weather and the particular conditions of its place. Our job was to honor that history, to work with it rather than against it.

By mid-summer, I had made my first acceptable spoon. It wasn't beautiful, but it was functional and balanced, with a bowl that held liquid and a handle that felt comfortable in the hand. James examined it without comment, then set it with his own utensils in the kitchen drawer. That simple gesture—not marking it as a student's work, not qualifying it with praise or criticism, just accepting it as useful—meant more than any compliment.

The remaining weeks passed in a rhythm of work and learning. I progressed from spoons to small boxes, from boxes to a stool with three legs. Each project taught me something: patience, attention, the acceptance of failure as part of learning. I discovered that woodworking was meditation disguised as craft, that the repetitive motions of planing and sanding cleared my mind in a way that nothing else had.

On my last evening, James and I sat on the porch he'd built decades ago, the wood silvered with age and weather. Swallows darted overhead, catching insects in the fading light. He handed me a small wooden box, plain but perfectly made, the lid fitting so precisely that it took gentle pressure to remove.

"For your things," he said. "Whatever you decide to keep."

I turned the box in my hands, feeling the smooth surfaces, the exact corners, the care in every joint. I thought about my father's assessment of James's choices, his belief that his brother had diminished himself by leaving law for woodworking. But sitting there on that porch, I understood something my father had missed: James hadn't run away from anything. He had run toward something—toward work that required his full attention, toward creating objects that would outlast him, toward a life measured not in billable hours but in things made well.

When I returned home, I didn't talk much about the summer. My friends asked about Vermont, and I said it was fine, quiet, boring even. But I kept the box James had given me on my desk, and sometimes I would open it just to feel the precision of the fit, to remember the smell of that workshop, to think about the invisible history in every piece of wood, and the patience required to reveal what was already there, waiting.

1. The narrator's parents' stated reason for sending her to Uncle James for the summer was:

A. to punish her for poor behavior during the school year.

B. to expose her to family she had never met.

C. to provide an opportunity for personal growth.

D. to keep her away from friends they disapproved of.

2. The passage indicates that the narrator's father views Uncle James's career choice as:

F. admirable and wise.

G. completely incomprehensible.

H. worthy of both admiration and pity.

J. a betrayal of the family's values.

3. When Uncle James tells the narrator "The spoon's already in there", he primarily means that:

A. he has already partially carved the spoon for her.

B. the carver's job is to reveal what the wood naturally suggests.

C. spoons are the easiest objects for beginners to make.

D. the narrator lacks the imagination to create original designs.

4. The narrator's initial reaction to Uncle James's instruction about the spoon can best be described as:

F. skeptical and dismissive.

G. enthusiastic and eager.

H. confused and angry.

J. respectful and attentive.

5. According to the passage, by the end of the first week, the narrator had:

A. mastered the basic techniques of spoon carving.

B. decided to quit and return home early.

C. earned Uncle James's praise for her progress.

D. created seven poorly made spoons and developed sore muscles.

6. The passage suggests that the narrator's attitude toward the work changed because:

F. Uncle James began giving her more direct instruction.

G. she began noticing details and developing genuine interest in the craft.

H. her friends from home visited and encouraged her.

J. the work became significantly easier after the first week.

7. Uncle James's explanation for rejecting the oak board primarily illustrates:

A. his understanding that materials have invisible qualities that affect long-term results.

B. his perfectionism and unwillingness to work with flawed materials.

C. his tendency to waste good wood on minor imperfections.

D. his belief that only the most expensive materials produce quality work.

8. When Uncle James places the narrator's first acceptable spoon in the kitchen drawer without comment, this gesture is significant because it:

F. shows his disappointment that she hasn't progressed faster.

G. demonstrates his lack of interest in her development.

H. suggests he doesn't want to discourage her with criticism.

J. indicates his acceptance of her work as genuinely useful.

9. The narrator's final understanding of Uncle James's career choice suggests that she now believes he:

A. made a mistake that he's too proud to admit.

B. sacrificed financial success for personal happiness.

C. moved toward meaningful work rather than away from success.

D. would have been happier as a lawyer if he had persisted.

PASSAGE II — SOCIAL SCIENCE

This passage is adapted from an article about the psychology of decision-making under uncertainty.

Imagine you're offered a choice: receive $50 guaranteed, or flip a coin for a chance at $100 (heads) or nothing (tails). Most people choose the guaranteed $50, even though mathematically, the expected value of the coin flip is the same—$50. This tendency, documented across thousands of experiments, reveals a fundamental feature of human psychology: we are not the rational calculators that classical economic theory assumed we were. Instead, we are systematic risk-avoiders whose decisions are shaped by cognitive biases that made sense in our evolutionary past but sometimes lead us astray in modern contexts.

The field of behavioral economics, pioneered by psychologists Daniel Kahneman and Amos Tversky in the 1970s, emerged from documenting these systematic deviations from rational choice. Their prospect theory, for which Kahneman received the Nobel Prize in Economics in 2002, demonstrated that people's decisions under uncertainty are influenced not just by outcomes and probabilities, but by how options are framed and whether outcomes are viewed as gains or losses.

One of the most robust findings in behavioral economics is loss aversion: the principle that losses loom larger than gains. Losing $100 feels roughly twice as bad as gaining $100 feels good. This asymmetry explains many otherwise puzzling behaviors. It explains why homeowners hold onto houses in declining markets rather than selling at a loss, even when selling would be economically rational. It explains why investors hold losing stocks too long and sell winning stocks too quickly. It explains why people keep paying for gym memberships they don't use—canceling feels like acknowledging a loss.

Loss aversion made evolutionary sense. For our ancestors living on the edge of survival, a lost resource could mean death, while an extra resource provided less marginal benefit. Better to avoid losses than to seek equivalent gains. But in modern financial markets, insurance decisions, and career choices, loss aversion can lead to poor outcomes. We avoid necessary risks, hold onto failing ventures too long, and make decisions based on arbitrary reference points rather than actual consequences.

Another key insight from behavioral economics concerns framing effects. The same choice, presented differently, elicits dramatically different responses. In a classic study, participants were asked to imagine a disease outbreak expected to kill 600 people and to choose between two treatment programs. When the programs were described in terms of lives saved—Program A saves 200 people for certain; Program B has a 1/3 chance of saving all 600 people and a 2/3 chance of saving no one—most people chose Program A. When the same programs were described in terms of deaths—Program A results in 400 deaths for certain; Program B has a 1/3 chance of zero deaths and a 2/3 chance of 600 deaths—most people chose Program B. The outcomes were identical, but framing the choice in terms of gains versus losses reversed preferences.

These framing effects reveal that we don't evaluate choices in objective terms. Instead, we evaluate them relative to reference points that can be manipulated through language. Marketers exploit this constantly: they sell "90% fat-free" rather than "10% fat" products; they advertise a "discount" from an inflated "original price"; they present insurance as protecting against loss rather than as purchasing peace of mind.

Behavioral economics has identified dozens of other biases and heuristics that shape decision-making. The availability heuristic leads us to overestimate the likelihood of vivid or recent events—people fear plane crashes more than car accidents despite statistics showing driving is far more dangerous. The anchoring effect causes initial information to disproportionately influence subsequent judgments—the first price quoted in a negotiation shapes all following offers. The sunk cost fallacy makes us continue investing in failing projects because we've already invested resources, even when cutting losses would be rational.

Understanding these biases has practical implications. Financial advisors can help clients make better investment decisions by framing choices in ways that counteract loss aversion and other biases. Policy makers can design choice architecture—the context in which people make decisions—to nudge them toward better outcomes. For example, making retirement savings the default option (requiring employees to actively opt out rather than opt in) dramatically increases participation rates.

This approach, called libertarian paternalism, aims to improve decisions while preserving freedom of choice. Critics argue that it's manipulative, that even well-intentioned nudging constitutes a form of social engineering. Defenders respond that choice architecture is unavoidable—there's no neutral way to present options—so we might as well design it thoughtfully.

The deeper philosophical question concerns the definition of rationality itself. Classical economics defined rationality as consistency: people should make choices that maximize expected utility based on their preferences and beliefs. Behavioral economics shows that real people routinely violate this standard. But does this mean we're irrational, or does it mean the standard is wrong?

Some researchers argue that many biases are actually rational adaptations to cognitive limitations. Making quick decisions using simple heuristics was adaptive in environments where information was limited and time was short. Loss aversion makes sense when losses truly do matter more than gains. These "biases" become problematic only in modern contexts that differ from the environments in which they evolved.

Others argue that discovering and correcting our biases is precisely what rationality means. We can't change our intuitive responses—loss aversion and framing effects happen automatically—but we can learn to recognize when our intuitions are likely to mislead us and apply deliberate, reflective thinking. This dual-process view sees human thinking as involving two systems: a fast, intuitive, emotional system that generates automatic responses, and a slow, deliberate, logical system that can override those responses when necessary.

The practical challenge is knowing when to trust intuition and when to be skeptical of it. In familiar domains where we have experience and quick feedback, intuition often serves us well. Expert chess players, experienced firefighters, and skilled surgeons make excellent intuitive decisions because they've developed pattern recognition through extensive practice. But in domains involving probabilities, large numbers, or delayed feedback, intuition systematically fails. In those contexts, we need to rely on analysis, statistics, and decision-making frameworks that counteract our biases.

Behavioral economics has transformed how we understand human decision-making, showing that irrationality isn't an occasional error but a systematic feature of how our minds work. This knowledge doesn't make us perfectly rational—we can't simply decide to stop experiencing loss aversion or framing effects. But it does allow us to recognize situations where our intuitions are likely to mislead us, to design better choice environments, and to develop strategies that help us make decisions more aligned with our long-term interests. In showing us how we deviate from rationality, behavioral economics paradoxically provides tools for becoming more rational.

10. According to the passage, when offered a guaranteed $50 or a coin flip for $100 or nothing, most people:

F. choose the guaranteed $50 despite equal expected value.

G. choose the coin flip because the potential gain is larger.

H. calculate the expected value before deciding.

J. are equally divided between the two options.

11. The passage indicates that prospect theory, developed by Kahneman and Tversky, demonstrated that decisions under uncertainty are influenced by:

A. only the mathematical probabilities of different outcomes.

B. how options are framed and whether outcomes represent gains or losses.

C. evolutionary adaptations that no longer apply in modern contexts.

D. the amount of time people have to make decisions.

12. According to the passage, loss aversion is the principle that:

F. people always avoid risky decisions involving potential losses.

G. losses are economically more significant than gains.

H. losing something feels roughly twice as bad as gaining it feels good.

J. people fear loss more than they should given actual probabilities.

13. The passage uses the example of homeowners holding onto houses in declining markets to illustrate:

A. poor understanding of real estate economics.

B. the importance of timing in property sales.

C. irrational optimism about market recovery.

D. how loss aversion leads to economically irrational decisions.

14. According to the disease outbreak study described in the passage, when treatment options were framed in terms of deaths rather than lives saved:

F. participants became confused and couldn't make decisions.

G. participant preferences reversed, favoring the risky option.

H. participants chose based on which program would save more lives.

J. participants rejected both options as unacceptable.

15. The passage suggests that the availability heuristic causes people to:

A. overestimate the likelihood of vivid or recent events.

B. rely too heavily on the first information they receive.

C. continue investing in projects where they've already spent resources.

D. evaluate options relative to arbitrary reference points.

16. According to the passage, "libertarian paternalism" refers to:

F. a political philosophy combining individual freedom with government authority.

G. economic policies that restrict consumer choice for their own good.

H. regulatory frameworks that make certain choices illegal.

J. designing choice architecture to improve decisions while preserving freedom of choice.

17. The passage indicates that critics of libertarian paternalism argue that it is:

A. ineffective at changing actual behavior.

B. too expensive to implement on a large scale.

C. manipulative and constitutes a form of social engineering.

D. based on insufficient scientific evidence.

18. The dual-process view of thinking described in the passage involves:

F. a fast, intuitive system and a slow, deliberate system that can override intuition.

G. two competing economic theories about rational decision-making.

H. the difference between how economists and psychologists understand behavior.

J. separate brain regions that evolved at different times in human history.

PASSAGE III — HUMANITIES

This passage is adapted from an essay about the history and influence of abstract expressionism in American art.

In the decade following World War II, New York City displaced Paris as the center of the Western art world, largely due to a movement that would become known as Abstract Expressionism. Artists including Jackson Pollock, Mark Rothko, Willem de Kooning, and Barnett Newman created works that rejected traditional representation, emphasized spontaneity and emotion, and operated on scales that demanded physical engagement from both creator and viewer. This wasn't merely a stylistic shift; it represented a fundamental reconception of what painting could be and what role the artist should play in society.

The term "Abstract Expressionism" itself is somewhat misleading, encompassing artists whose approaches differed dramatically. Pollock's drip paintings, created by pouring and flinging paint onto canvases laid on the floor, emphasized process and gesture. Rothko's luminous fields of color, meant to evoke emotional and spiritual responses, prioritized contemplation over action. De Kooning's aggressive brushwork maintained connections to figuration even as it dissolved forms. What united these diverse practices was a rejection of traditional composition, a scale that engulfed the viewer, and a belief that the act of painting itself was meaningful—not just what the painting depicted.

Jackson Pollock became the public face of the movement, celebrated and mocked in equal measure. His technique—dancing around canvases on his studio floor, dripping and throwing paint in complex layers—seemed to embody American confidence and energy in the postwar era. Critic Clement Greenberg championed Pollock as the greatest living American painter, arguing that his work represented the culmination of modernism's trajectory toward flatness and abstraction. Life magazine asked, "Is he the greatest living painter in the United States?" in a 1949 article that made Pollock famous beyond art world circles.

But Pollock's work was more than performative spectacle. His all-over compositions, with no clear focal point, demanded a new way of looking. Rather than standing back to take in a unified image, viewers had to scan across the surface, following lines and textures that never resolved into stable forms. The paintings recorded the artist's bodily movements—his steps around the canvas, the speed and trajectory of his gestures—making them indexes of action as much as aesthetic objects.

Mark Rothko pursued a radically different path toward similar goals. His mature works—large canvases with rectangles of color floating on colored grounds—appear simple at first glance. But prolonged viewing reveals extraordinary complexity: edges that seem sharp become soft; colors that appear solid show layers and variations; shapes that seem static begin to pulse and breathe. Rothko intended his paintings as

environments for contemplation, carefully controlling how they were displayed and insisting on intimate viewing distances despite their monumental size.

Rothko spoke of his work in terms of tragedy, ecstasy, and the human condition—grand themes that seemed at odds with paintings that were, visually, just colored rectangles. But he insisted that subject matter remained central to his work, even as recognizable imagery disappeared. "**I'm not an abstractionist**," he said. "I'm interested only in expressing basic human emotions—tragedy, ecstasy, doom, and so on." The apparent contradiction resolved in the viewing experience: standing before a Rothko, one feels emotional responses that aren't directed at any specific narrative or form. The paintings become vehicles for feeling rather than representations of feeling.

The movement's rise coincided with America's emergence as a global superpower, and Abstract Expressionism became entangled with Cold War politics. The U.S. government and private institutions promoted Abstract Expressionism internationally as evidence of American cultural vitality and freedom. Where Soviet art was constrained by socialist realism's demand for understandable propaganda, Abstract Expressionism represented individual freedom and artistic autonomy. The C.I.A. even covertly funded exhibitions and publications promoting Abstract Expressionism, viewing the movement as a cultural weapon in ideological competition with the Soviet Union.

This political appropriation troubled many of the artists, most of whom held leftist political views and had been involved in social realist and politically engaged art earlier in their careers. They had turned to abstraction not to serve state interests but to explore more fundamental questions about art's nature and purpose. The irony was sharp: a movement rooted in individual expression and artistic freedom became a tool of government propaganda.

Women artists associated with Abstract Expressionism faced particular challenges. While male artists like Pollock cultivated images of masculine genius—the tortured artist wielding paint with violent energy—women working in similar styles were often marginalized or dismissed. Lee Krasner, married to Pollock, was a sophisticated painter whose work was overshadowed by her husband's fame. Helen Frankenthaler developed an influential technique of staining raw canvas with thinned paint, creating luminous fields that influenced the next generation of color field painters. Joan Mitchell's vigorous abstractions demonstrated that gestural painting wasn't inherently masculine. Yet all three struggled for recognition, their achievements often framed in relation to male artists rather than on their own terms.

The movement's influence extended beyond painting. Abstract Expressionist ideas about spontaneity, scale, and the artwork as an arena for action influenced dance, music, literature, and poetry. Choreographers like Merce Cunningham embraced chance operations and non-narrative structures. Composers like John Cage explored indeterminacy and silence. Poets including Frank O'Hara and John

Ashbery developed styles that emphasized immediate experience over traditional narrative or formal structures.

By the early 1960s, Abstract Expressionism's dominance was waning. Pop Art emerged, embracing the commercial imagery and mass culture that Abstract Expressionists had rejected. Minimalists criticized Abstract Expressionism's emphasis on emotion and gesture, proposing instead an art of literal objects and systematic procedures. These newer movements positioned themselves as corrections to Abstract Expressionism's perceived excesses—its romanticism, its cult of the individual artist, its lack of irony or critical distance.

Yet Abstract Expressionism's fundamental questions remain vital. What is the relationship between the artist's gesture and the finished work? Can abstract forms convey emotional or spiritual content? What should be the scale and physical presence of art? How do we balance formal innovation with deeper human concerns? Contemporary artists continue to wrestle with these questions, even those who reject Abstract Expressionist answers.

The movement's legacy is visible not just in continuing abstract painting traditions but in broader assumptions about art's purposes. The idea that art should primarily express the artist's inner state, that authenticity matters more than technical skill, that innovation is an end in itself—these premises, now taken for granted, were firmly established by Abstract Expressionism. For better or worse, we still inhabit a cultural landscape that movement helped create, one where artistic freedom means freedom from representation, tradition, and any obligation beyond the artist's own vision.

19. According to the passage, the term "Abstract Expressionism" is somewhat misleading because:

A. the artists rejected both abstraction and expressionism as labels.

B. it encompasses artists with dramatically different approaches.

C. most of the artworks weren't actually abstract.

D. the movement began in Europe, not America.

20. The passage describes Jackson Pollock's drip painting technique as emphasizing:

F. careful planning and precise execution.

G. process and gesture rather than finished composition.

H. traditional methods of applying paint to canvas.

J. symbolic meanings hidden in abstract forms.

21. According to the passage, Pollock's all-over compositions demanded a new way of looking because they:

A. contained hidden images that viewers had to discover.

B. were too large to fit in most galleries.

C. used colors that were difficult to perceive correctly.

D. had no clear focal point, requiring viewers to scan the surface.

22. The passage indicates that Mark Rothko's mature paintings appear simple but reveal complexity through:

F. prolonged viewing that shows layers, variations, and movement.

G. scientific analysis using ultraviolet light.

H. written explanations that Rothko provided for viewers.

J. comparison with his earlier, more representational work.

23. Rothko's statement "I'm not an abstractionist" suggests that he:

A. believed subject matter remained central even without recognizable imagery.

B. planned to return to representational painting later in his career.

C. disagreed with how critics categorized his work.

D. rejected the Abstract Expressionist movement entirely.

24. According to the passage, Abstract Expressionism became entangled with Cold War politics because:

F. most Abstract Expressionist artists were political activists.

G. Soviet artists began copying Abstract Expressionist techniques.

H. the U.S. promoted it as evidence of American cultural freedom.

J. Communist governments banned abstract art in their countries.

25. The passage suggests that the political appropriation of Abstract Expressionism was ironic because:

A. the movement was originally developed in Europe, not America.

B. most artists held leftist views and hadn't intended to serve state interests.

C. the artworks were too expensive for ordinary Americans to purchase.

D. Communist countries also began promoting similar artistic styles.

26. According to the passage, women artists associated with Abstract Expressionism:

F. received more recognition than their male counterparts.

G. worked primarily in sculpture rather than painting.

H. rejected the masculine image cultivated by male artists.

J. faced marginalization despite significant artistic achievements.

27. The passage indicates that by the early 1960s, newer movements like Pop Art and Minimalism positioned themselves as:

A. continuations of Abstract Expressionist principles.

B. corrections to Abstract Expressionism's perceived excesses.

C. attempts to make Abstract Expressionism more accessible.

D. collaborations with former Abstract Expressionist artists.

PASSAGE IV — NATURAL SCIENCE

This passage is adapted from an article about the human microbiome.

The human body contains approximately 37 trillion cells, each carrying our unique genetic code. But we are far from solitary organisms. Living on and within us are an estimated 38 trillion bacterial cells, along with viruses, fungi, and other microorganisms that collectively outnumber our own cells. This vast ecosystem of microbes, known as the human microbiome, has emerged as one of the most exciting frontiers in biological and medical research, challenging traditional notions of human identity and health.

For most of medical history, bacteria were viewed primarily as pathogens—disease-causing invaders to be eliminated with antibiotics and antiseptics. This perspective wasn't wrong, exactly; bacterial infections have killed billions of people throughout history, and antibiotics represent one of medicine's greatest achievements. But this framework was incomplete. The vast majority of bacteria that live on and in us are either harmless or beneficial, performing functions essential to our health.

The human microbiome varies dramatically by body location. Skin harbors different bacterial communities depending on whether the area is oily, dry, or moist. The mouth contains hundreds of bacterial species forming complex biofilms on teeth and tongue. The vaginal microbiome plays crucial roles in preventing infections and influencing pregnancy outcomes. But the most diverse and consequential microbiome resides in the gut, particularly the large intestine, where bacteria help digest food, synthesize vitamins, train the immune system, and even influence brain function.

Gut bacteria perform digestive tasks that human cells cannot. Many dietary fibers are indigestible by human enzymes but can be broken down by bacterial enzymes, producing short-chain fatty acids that provide energy and regulate inflammation. Bacteria synthesize vitamin K and certain B vitamins that would otherwise need to come from diet. They also produce molecules that influence intestinal cells, immune responses, and even neurotransmitter production.

The relationship between gut bacteria and the immune system is particularly intricate. Approximately 70 percent of the body's immune cells reside in the gut, constantly sampling the bacterial population. During early development, this interaction trains the immune system to distinguish between harmless bacteria and dangerous pathogens. Mice raised in sterile environments, without any microbiome, develop dysfunctional immune systems—they either fail to respond to genuine threats or overreact to harmless substances, developing allergies and autoimmune conditions.

This observation has led to the hygiene hypothesis: that reduced microbial exposure in modern, sanitized environments contributes to rising rates of allergies, asthma, and autoimmune diseases. Children growing up on farms, exposed to diverse microbes from animals and soil, have lower rates of these conditions than urban children in hyper-clean environments. The immune system, evolved to function in a microbe-rich world, may malfunction when deprived of its usual microbial training partners.

Recent research has revealed surprising connections between gut bacteria and the brain, mediated through what scientists call the gut-brain axis. The gut has its own extensive nervous system—sometimes called the "second brain"—containing more neurons than the spinal cord. This enteric nervous system communicates with the brain through the vagus nerve, which runs from the brainstem to the abdomen. Gut bacteria produce neurotransmitters and other signaling molecules that can influence this communication.

Studies have shown correlations between microbiome composition and various neurological and psychiatric conditions. Patients with depression often have different gut bacterial profiles than healthy individuals. Mice given fecal transplants from depressed humans show depression-like behaviors. Anxiety disorders, autism spectrum conditions, and even Parkinson's disease have been linked to alterations in the gut microbiome. While these associations don't prove causation—it's unclear whether microbiome changes cause these conditions or result from them—they suggest the gut-brain connection is more profound than previously imagined.

The therapeutic potential is tantalizing. Could manipulating the microbiome treat depression, anxiety, or neurodegenerative diseases? Some researchers are exploring "psychobiotics"—beneficial bacteria that produce or influence neurotransmitters. Others are investigating whether dietary changes that alter the microbiome could complement or replace psychiatric medications. The field is still young, with more questions than answers, but the possibilities have captured scientific and public imagination.

Antibiotics, while lifesaving for treating infections, can have unintended consequences for the microbiome. Broad-spectrum antibiotics kill not just pathogenic bacteria but also beneficial ones, sometimes permanently altering the gut microbial community. Children who receive multiple courses of antibiotics during development show increased risks of obesity, allergies, and asthma later in life. This doesn't mean we should avoid antibiotics when medically necessary, but it does suggest we need more targeted approaches that minimize collateral damage to beneficial bacteria.

Fecal microbiota transplantation (FMT)—transferring fecal matter from a healthy donor to a patient—sounds unpleasant but has proven remarkably effective for treating Clostridium difficile infections, a dangerous condition caused by antibiotic-resistant bacteria. After antibiotics have wiped out normal gut bacteria, C. difficile can proliferate unchecked. FMT reintroduces a diverse bacterial community that

outcompetes C. difficile, curing infections that resist conventional treatment. Success rates exceed 90 percent, far better than antibiotics alone.

The effectiveness of FMT for C. difficile has inspired research into using it for other conditions. Some studies suggest benefits for inflammatory bowel disease, though results are less dramatic. There's interest in using FMT for obesity, metabolic disorders, and even autism, though these applications remain highly experimental. The challenge is that we don't fully understand which bacterial strains are beneficial, how they interact, or why they work.

This knowledge gap highlights a fundamental challenge in microbiome research: complexity. The gut contains hundreds of bacterial species forming intricate ecological networks. Species compete and cooperate, produce and consume different molecules, occupy various niches. Identifying which bacteria matter for which functions, and how to manipulate these communities predictably, requires understanding ecosystems at a level we haven't yet achieved.

Moreover, everyone's microbiome is somewhat unique, shaped by genetics, diet, environment, medications, and life history. What works for one person may not work for another. Personalized medicine based on microbiome profiling might eventually tailor treatments to individual microbial communities, but we're far from that capability now.

Despite these challenges, microbiome research has already transformed how we think about human biology and health. We are not isolated organisms but ecosystems, depending on trillions of microbial partners for normal function. This perspective suggests new approaches to medicine—not just killing pathogens but cultivating beneficial communities, not just treating isolated organs but understanding how body systems interact through microbial mediation. The microbiome revolution is still unfolding, with discoveries emerging rapidly and implications extending into nutrition, psychiatry, immunology, and beyond. We're learning to see ourselves not as individuals but as communities, and that shift in perspective may ultimately prove as important as any specific therapeutic development.

28. According to the passage, the human body contains approximately:

F. 37 trillion bacterial cells and 38 trillion human cells.

G. 38 trillion bacterial cells and 37 trillion human cells.

H. equal numbers of bacterial and human cells.

J. far more human cells than bacterial cells.

29. The passage indicates that for most of medical history, bacteria were viewed primarily as:

A. disease-causing invaders to be eliminated.

B. beneficial organisms essential to human health.

C. neutral organisms neither helpful nor harmful.

D. organisms too small to have significant effects.

30. According to the passage, gut bacteria perform all of the following functions EXCEPT:

F. helping digest certain dietary fibers.

G. synthesizing vitamins like vitamin K.

H. training the immune system during development.

J. directly replacing damaged intestinal cells.

31. The passage explains that approximately what percentage of the body's immune cells reside in the gut?

A. 30 percent

B. 50 percent

C. 70 percent

D. 90 percent

32. The hygiene hypothesis suggests that:

F. reduced microbial exposure contributes to rising rates of allergies and autoimmune diseases.

G. excessive hand-washing leads to weakened immune systems.

H. children raised on farms have stronger immune systems due to genetics.

J. urban environments contain more dangerous pathogens than rural areas.

33. According to the passage, the "gut-brain axis" refers to:

A. the physical proximity of the stomach and brain in the body.

B. psychological stress affecting digestive function.

C. dietary choices influencing mental health.

D. communication between gut bacteria and the brain through the nervous system.

34. The passage indicates that studies showing correlations between microbiome composition and psychiatric conditions:

F. prove that gut bacteria cause depression and anxiety.

G. demonstrate that psychiatric medications alter gut bacteria.

H. suggest profound gut-brain connections but don't prove causation.

J. have been discredited by more recent research.

35. According to the passage, broad-spectrum antibiotics can have unintended consequences because they:

A. become less effective over time through bacterial resistance.

B. kill both pathogenic and beneficial bacteria, altering the microbiome.

C. cause allergic reactions in patients with compromised immune systems.

D. are more expensive than targeted antibiotic treatments.

36. The passage describes fecal microbiota transplantation (FMT) as remarkably effective for treating:

F. most types of bacterial infections.

G. Clostridium difficile infections.

H. inflammatory bowel disease.

J. obesity and metabolic disorders.

Science

TIME: 40 minutes for 40 questions

DIRECTIONS: Following are seven passages and then questions that refer to each passage. Choose the best answer and shade in the corresponding oval on your answer sheet.

PASSAGE I

A researcher has conducted two experiments to test the rate of pinecone production in the Pinus palustris Miller (a type of pine tree).

Experiment 1

P. palustris Miller seeds were collected from 5 different populations (A1, A2, A3, A4, A5) each of which was from a different site (S1, S2, S3, S4, S5).

The seeds were grown under controlled conditions in a greenhouse. 300 of these seedlings from each population were chosen at random. Each set of seedlings was divided into 30 groups with 10 seedlings in each group. The seedlings were planted in marked cylindrical containers which were then placed at each of the 5 sites. Figure 1 shows the procedure for A1.

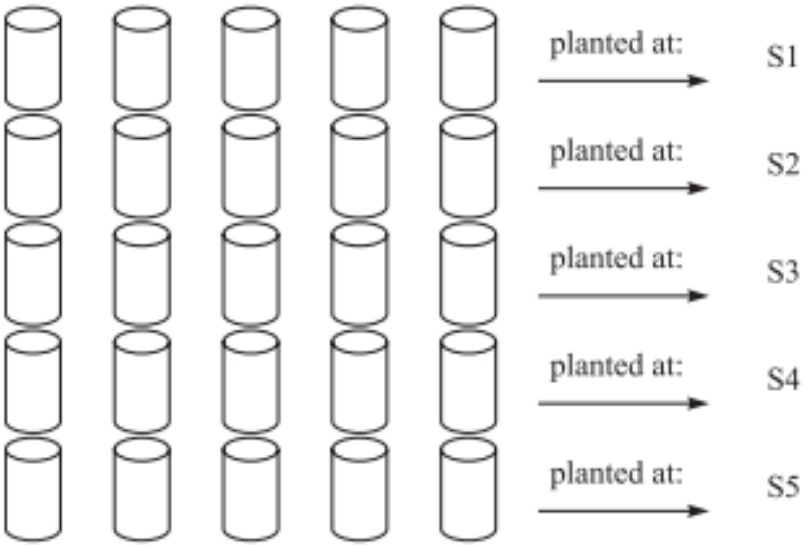


Figure 1 25 Cups containing a total of 250 A1 seedlings

Table 1 shows the number of pinecones that were produced on each tree.

The researchers also collected data on the root structure of the trees. From the information they collected they came up with the following formula relating the root structure in inches to the number of pinecones produced:

number of pinecones = 0.037 + 0.147 (root thickness)

Statistical analysis indicated that this equation was accurate.

Table 1

Site	Pinecones produced per tree				
	A1	A2	A3	A4	A5
S1	2.1	7.1	12.0	2.4	3.1
S2	3.9	2.5	8.5	6.2	6.4
S3	0.4	6.7	3.1	9.3	7.2
S4	5.2	2.1	2.9	0.2	4.5
S5	1.8	6.3	0.9	3.7	8.5

Experiment 2

P. palustris Miller seeds were collected and grown in the same manner as in Experiment 1. When the seeds had grown into seedlings, 150 containers were prepared with 5 A1 seedlings and 5 seedlings from either A2, A3, A4 or A5. Seven containers for each of the 4 combinations were planted at each site.

Table 2 shows how many pinecones were produced on each A1 plant.

Table 2

Site	Pinecones produced per A1 tree when planted with			
	A2	A3	A4	A5
S1	5.7	3.2	6.7	3.5
S2	3.2	1.7	4.3	5.2
S3	9.6	8.4	0.8	7.0
S4	4.2	3.2	1.3	0.2
S5	4.9	6.1	6.1	3.9

1. In Experiment 1, trees from A5 produced more pinecones than did trees from A4 at which of the following sites?

A. S4 only

B. S1 and S5 only

C. S1, S2, S4, and S5 only

D. S1, S2, S3, S4, and S5 only

2. In Experiment 1, A1 trees produced the largest number of pinecones at which of the following sites?

F. S1

G. S3

H. S4

J. S5

3. The procedures utilized in Experiment 2 were repeated, except that only 25 containers were planted at a sixth site (S6). The results appear in Table 3.

Table 3

Site	Pinecones produced per A1 tree when planted with			
	A2	A3	A4	A5
S6	4.1	6.4	1.9	0.3

Based on these data, one should conclude that A1 trees produced more pinecones at S6 than at which of the following sites in Experiment 2?

A. S1

B. S3

C. S4

D. S5

4. A student wanted to produce the greatest number of pinecones from 6 A1 trees, using the procedures from Experiment 2. Which plants and site should the A1 trees be combined with to achieve the desired results?

F. A4 and S1

G. A2 and S3

H. A3 and S2

J. A5 and S5

5. In which of the following ways was Experiment 2 different from Experiment 1?

A. Experiment 2 included trees from more than 1 population.

B. Experiment 2 combined trees from more than 1 species.

C. Experiment 2 trees were planted at all 5 sites.

D. Experiment 2 trees were planted at only 1 site.

6. In Experiment 2, how many seedlings were planted in each container?

F. 6

G. 8

H. 10

J. 12

PASSAGE II

Researchers conducted trials on a certain prescription drug delivered in immediate-release capsules and extended-release capsules.

Figure 1 shows the mean concentration (nanograms per milliliter [ng/mL]) of the two active ingredients of the prescription drug in patients' blood plasma over time (hr).

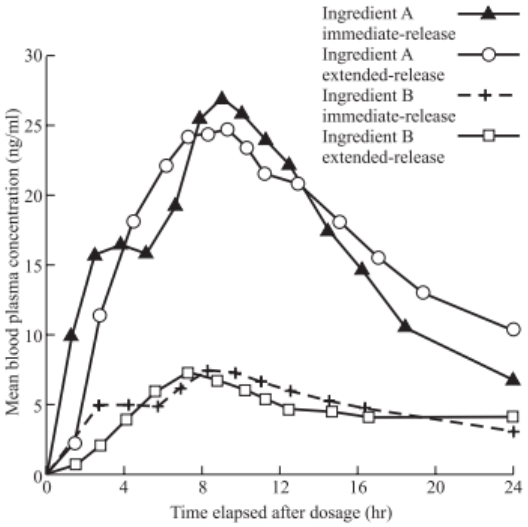


Figure 1

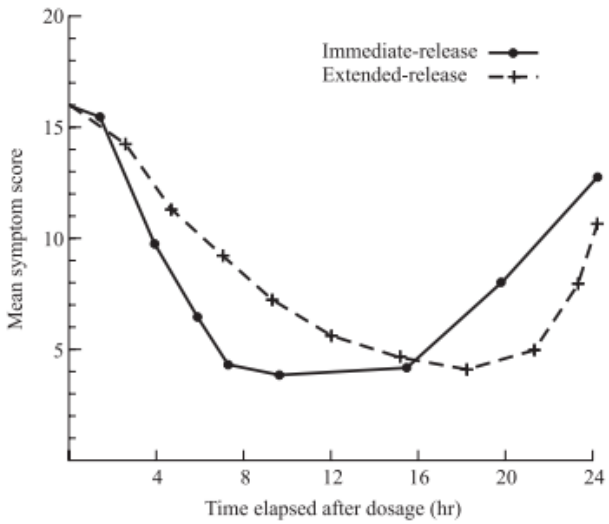


Figure 2

In clinical trials of the prescription drug, subjects given the prescription drug were interviewed at regular intervals about the symptoms the prescription drug is meant to relieve. After each interview, the subjects were assigned a symptom score. A high symptom score corresponds to high intensity of symptoms, and a low symptom score indicates low intensity of symptoms. Figure 2 shows the mean symptom score over time (hr) for subjects who took the prescription drug.

In the clinical trials, some subjects were given the prescription drug and some subjects were given a placebo (an inactive pill). Table 1 shows the percentage of subjects from both groups who reported various adverse side effects.

Table 1

Body system	Side effect	Prescription drug group (%)	Placebo group (%)
General	Feeling of weakness	6	5
	Headache	26	14
Digestive system	Loss of appetite	32	5
	Diarrhea	8	0
	Dry mouth	31	5
	Nausea	14	0
Nervous system	Anxiety	7	4
	Dizziness	9	0
	Insomnia	25	11
	Irritability	11	4
Cardiovascular system	Rapid heart rate	10	2
Nutritional	Weight gain	15	0

7. According to Figure 1, 16 hours after taking the extended-release form of the prescription drug, the difference in mean blood plasma concentration between Ingredient A and Ingredient B is closest to:

A. 7 ng/ml.

B. 9 ng/ml.

C. 11 ng/ml.

D. 16 ng/ml.

8. Based on the data in Figures 1 and 2, the researchers should make which of the following conclusions about the overall change in mean blood plasma concentration and mean symptom score over time following dosage?

F. Both mean blood plasma concentration and mean symptom score increase then decrease.

G. Both mean blood plasma concentration and mean symptom score decrease then increase.

H. Mean blood plasma concentration increases then decreases, and mean symptom score decreases then increases.

J. Mean blood plasma concentration decreases then increases, and mean symptom score increases then decreases.

9. According to Figure 1, mean blood plasma concentration of Ingredient A administered in immediate-release form increases most during which of the following time periods?

A. From the moment of dosage to 3 hours after dosage.

B. From 3 hours after dosage to 10 hours after dosage.

C. From 10 hours after dosage to 14 hours after dosage.

D. From 14 hours after dosage to 24 hours after dosage.

10. Which of the following conclusions about adverse side effects caused by the prescription drug is consistent with the results shown in Table 1?

F. Results from the placebo group most question the number of instances of feeling of weakness caused by the prescription drug.

G. Results from the placebo group most question the number of instances of insomnia caused by the prescription drug.

H. Results from the placebo group least question the number of instances of anxiety caused by the prescription drug.

J. Results from the placebo group least question the number of instances of irritability caused by the prescription drug.

11. The symptom score of a clinical trial subject given the extended-release form of the prescription drug remained unchanged for 8 hours. Based on Figure 2, the 8-hour period most likely began:

A. 3 hours after dosage.

B. 5 hours after dosage.

C. 9 hours after dosage.

D. 14 hours after dosage.

PASSAGE III

The atmosphere is made up of 4 distinct layers: the troposphere, stratosphere, mesosphere, and thermosphere. Different types of clouds form in the different layers depending on the pressure in the atmosphere and the ambient temperature. The cloud types include nimbus, stratus, cumulus, and cirrus. Figure 1 shows the location of the barriers of the atmosphere when the temperature and pressure are at an ideal condition for cloud formation. It also shows the different types of clouds formed at the different levels. Note: Clouds are formed mostly of water crystals, but can also contain particles of rock and dust.

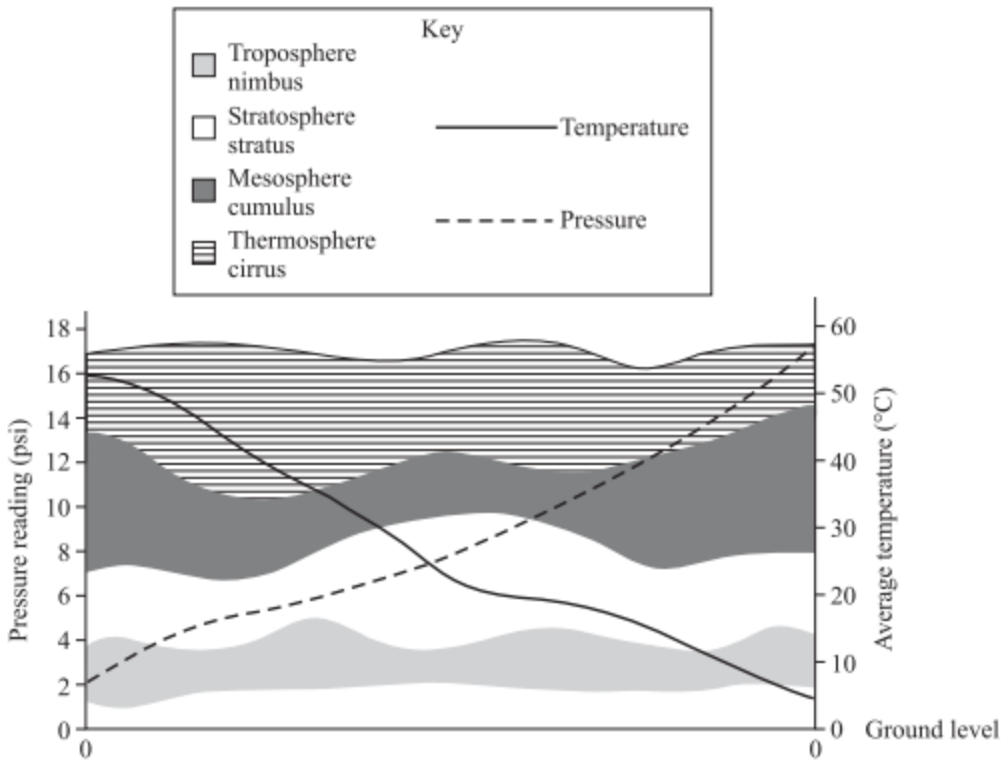


Figure 1

12. According to Figure 1, the atmospheric layer with the greatest range in pressure is the:

F. mesosphere.

G. thermosphere.

H. stratosphere.

J. troposphere.

13. Which of the following statements about the formation of cumulus clouds is supported by the data presented in Figure 1? Cumulus clouds typically form in:

A. pressures between 8 and 12 psi and at an average temperature of 35°C.

B. pressures between 12 and 16 psi and at an average temperature of 22°C.

C. a pressure of 4 psi and at average temperatures between 12°C and 22°C.

D. a pressure of 18 psi and at average temperatures between 50°C and 60°C.

14. According to Figure 1, as pressure within the atmospheric layers increases, temperature within the atmospheric layers:

F. increases only.

G. decreases only.

H. increases up to 6 psi, then decreases.

J. decreases up to 10 psi, then increases.

15. According to the information given in Figure 1, clouds within the stratosphere are most likely formed:

A. under a pressure of 4 psi and 20°C.

B. under a pressure of 10 psi and 30°C.

C. over a pressure of 12 psi and 40°C.

D. over a pressure of 14 psi and 50°C.

16. If a pressure of 7 psi were sustained within the atmosphere, according to Figure 1, which of the following types of clouds would likely form?

F. Cirrus

G. Cumulus

H. Nimbus

J. Stratus

PASSAGE IV

Because fish live in water they are exposed to any bacteria that exist in the water. Table 1 lists the habitat choices of 7 species of fish in a local pond and the fish's ability to combat the effects of the bacteria found in the water.

Table 1			
Fish species	Relative ability to combat bacteria	Habitat	Exposure to waterborne bacteria
A	<0.2	Shallow water with plants	None
B	<0.3	Shallow water with no plants	Low
C	0.2	Shallow water with no plants	Low
D	0.3	Deep water with no plants	Moderate
E	0.4	Shallow water with plants	High
F	0.6	Shallow water with plants	High
G	1.3	Shallow water with plants	High

Figure 1 shows the percent of fish that survive to adulthood in the lab for the 7 species, after exposure to water with bacteria present or exposure to water with the bacteria removed.

Figure 2 shows predicted bacteria levels over time in 4 geographic regions with fish populations.

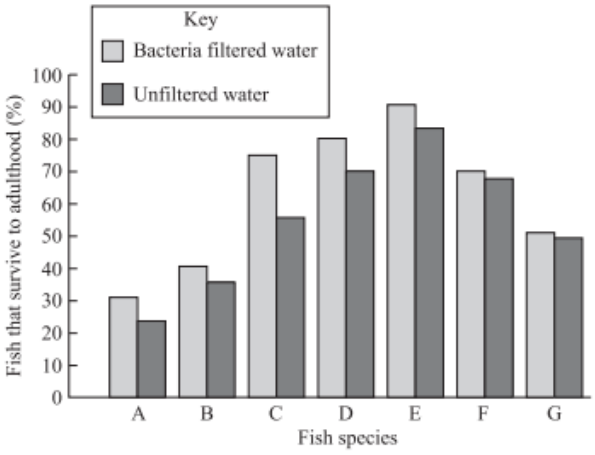


Figure 1

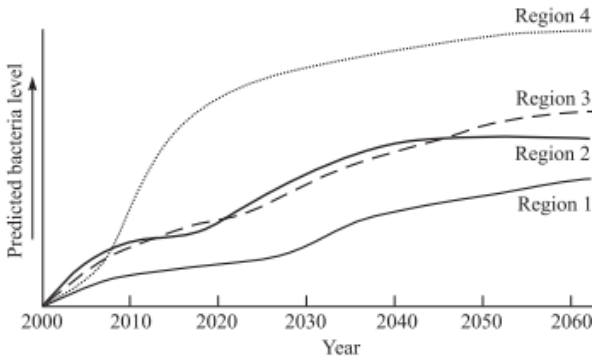


Figure 2

17. Based on the information in Figure 1, fish from which species are most likely to survive prolonged exposure to bacteria?

A. Species A

B. Species B

C. Species D

D. Species E

18. According to the data in Figure 1, which species showed the greatest difference between the percent of fish that survived to adulthood after exposure to unfiltered water, and the percent of fish that survived to adulthood after exposure to filtered water?

F. Species A

G. Species C

H. Species E

J. Species G

19. Researchers recently discovered a new species of fish that lives in deep water without plants. Based on the data in Table 1, the researchers would predict that this species' relative ability to combat bacteria is most likely:

A. high.

B. moderate.

C. low.

D. nonexistent.

20. According to the information in Table 1, for all the species shown, as the exposure to bacteria increases, the relative ability to combat the bacteria generally:

F. decreases only.

G. increases only.

H. decreases, then increases.

J. increases, then decreases.

21. Based on the data in Table 1 and Figure 1, fish that had the lowest percent of individuals survive to adulthood when exposed to bacteria tend to:

A. live in shallow water without plants.

B. live in shallow water with plants.

C. live in deep water without plants.

D. live in deep water with plants.

PASSAGE V

While digging in a remote site in Africa, paleontologists discovered a collection of fossilized dinosaur bones. The bones were dated back to the Jurassic period, and have been confirmed to be from a dinosaur known as a velociraptor. Two paleontologists discuss the finding.

Paleontologist 1

Once the well-preserved bones are assembled it is clear that they are velociraptor bones from the Jurassic period. The bones are long in the arms, indicating that the velociraptor was definitely capable of flight. You can see that there are cuts within the arm/wing bones of this dinosaur, indicating that it was caught while in flight. Perhaps it was attempting an escape from a more predatory dinosaur, such as tyrannosaurus rex. It is obvious from the body structure of the velociraptor that it was an effective hunter and predator. It was most likely quick to swoop in on its prey and was more than able to carry the prey away on its own. The form and function of the velociraptor has been misunderstood until this important discovery. The condition of these bones offers a clear picture of the way in which the velociraptor lived.

Paleontologist 2

Indeed, the velociraptor bones are in excellent condition. The long arm bones are indicative of the dinosaur's ability to scavenge prey and fend off larger predators. The cuts within the arm bones show that the velociraptor often stole its meals—the marks resemble defense wounds, perhaps from forcing other would-be scavengers away from the free meal. The structure of the velociraptor's feet indicates that it was a fast runner and was able to maneuver well through the high trees and undergrowth. This would certainly have allowed the velociraptor to quickly escape predators and possibly arrive at a kill-site before other larger dinosaurs, such as tyrannosaurus rex, descended upon the leftovers. The bones that were discovered answer many questions about the velociraptor, but they also bring up many new issues to consider.

22. Paleontologist 1's viewpoint contains the basic assumption that the velociraptor must have been:

F. unknown until the discovery of these bones.

G. an ineffective hunter.

H. previously mischaracterized.

J. unable to escape large predators.

23. Paleontologist 1 would most likely state that the cuts on the velociraptor bones were the result of:

A. failed attempts to fly.

B. fending off a competing scavenger.

C. an attack by a larger predator.

D. mistakes made in assembling the bones.

24. Suppose that the fossilized remains of another dinosaur species with long arm bones were discovered, and scientists determined that this dinosaur lived at the same time as the velociraptor. According to the passage, Paleontologist 2 would most likely conclude that:

F. the new dinosaur could fly.

G. the new dinosaur could be a scavenger.

H. the new dinosaur could not escape from predators.

J. the new dinosaur could swoop in on its prey.

25. Paleontologist 2's viewpoint regarding the velociraptor as a scavenger was based on the dinosaur's:

A. strong musculature.

B. excellent condition.

C. long arm bones.

D. ability to fly.

26. Paleontologist 1 would most likely support which of the following statements about the lifestyle of the velociraptor?

F. The velociraptor was a predatory dinosaur capable of flight, and is only now being understood.

G. The velociraptor was a dinosaur who scavenged other dinosaurs' kills.

H. The velociraptor was a fast runner that could easily out-maneuver its predators in order to survive.

J. The velociraptor was hunted by many other dinosaurs during its time on Earth.

27. Assuming all are true, both paleontologists would most likely agree with which of the following facts concerning the velociraptor?

A. It was threatened by larger dinosaurs, such as tyrannosaurus rex.

B. It was unable to sustain flight.

C. It was not built for speed, and therefore, could not easily fend for itself.

D. It was not an effective hunter.

28. Both Paleontologists 1 and 2 would most likely agree with which of the following statements about the discovery of the velociraptor bones? The bones:

F. did not clarify any assumptions about the velociraptor.

G. provided some useful information regarding the velociraptor.

H. could not be assembled properly due to the poor condition in which they were found.

J. completely altered both paleontologist's viewpoints regarding the velociraptor.

PASSAGE VI

The peaks of mountains often lose sediment due to wind erosion. Figure 1 shows mountain peak compositions, mountain heights, in meters (m), and the net change in meters (m), in mean peak height (MPH) from 1910 to 1970 along a section of the Rocky Mountains. A net negative change in MPH indicates a net loss of sediment and a net positive change in MPH indicates a gain of sediment.

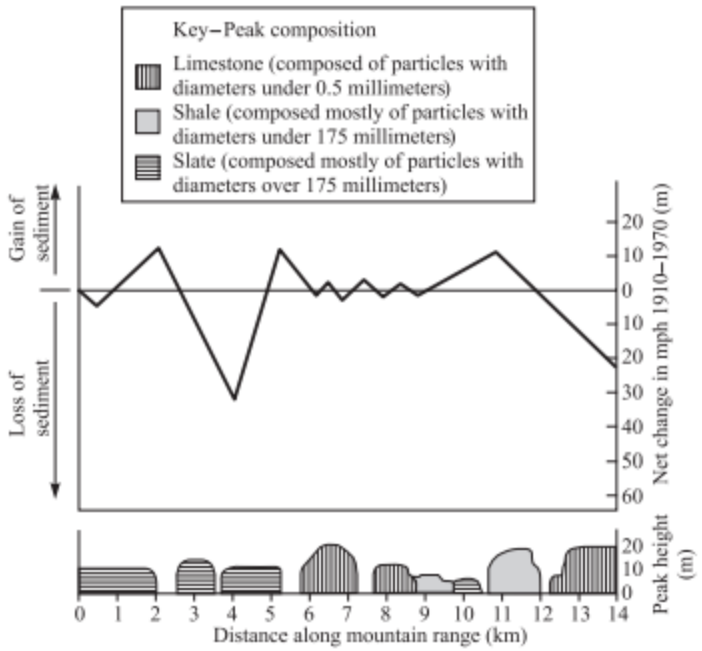


Figure 1

Table 1 shows the percentage of a year that horizontal sections of a mountain are exposed to wind.

Table 1

Peak section height (m)	Percentage of the year that peak section is exposed to wind
0.0–0.5	1.1
0.5–1.0	3.1
1.0–1.5	7.2
1.5–2.0	10.5
2.0–2.5	14.2
2.5–3.0	19.4
3.0–3.5	23.7
3.5–4.0	29.3
4.0–4.5	37.4
4.5–5.0	42.3
5.0–5.5	48.0

Note: Heights are measured from mean (average) sea level.

Figure 2 shows Peak C and D erosion rates, in m/y, as they relate to percentage of a year that mountain peak section is exposed to wind.

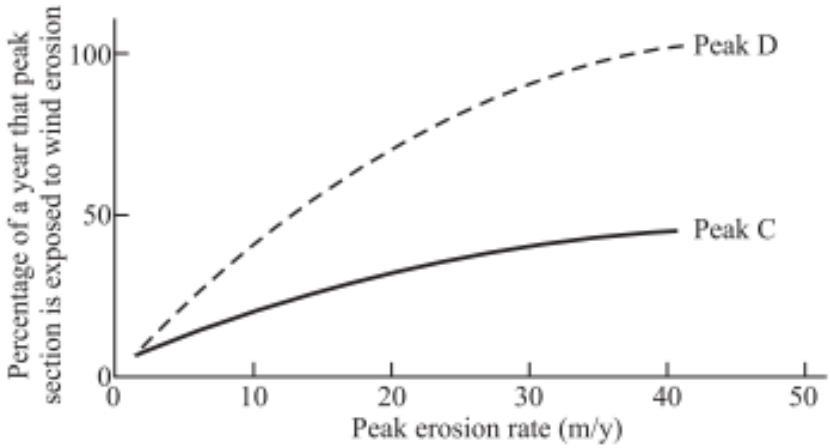


Figure 2

29. According to Figure 1, at a distance of 9 km along the mountain range, peaks of what composition are present, if any?

A. Peaks of slate

B. Peaks of shale

C. Peaks of limestone

D. No peaks are present

30. According to the information in Figure 1, which of the following properties was used to distinguish the various materials that compose the peaks in the study area?

F. Particle size

G. Particle clarity

H. Particle color

J. Particle density

31. Based on the information listed in Table 1, a peak section with a height of 5.5–6.0 m would be exposed to wind approximately what percentage of a year?

A. 22%

B. 39%

C. 48%

D. 53%

32. According to Figures 1 and 2, the difference between Peak C and Peak D erosion rates could best be explained as a difference in the:

F. heights of the two peaks.

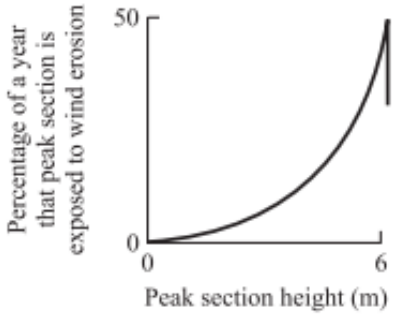
G. force of the winds on the two peaks.

H. composition of the two peaks.

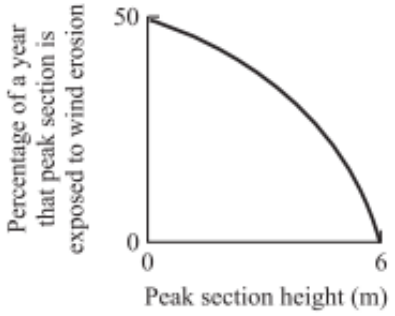
J. annual snowfall on the two peaks.

33. According to Table 1, which of the following figures best represents the relationship between the height of a peak section and the percentage of a year that peak section is exposed to wind erosion?

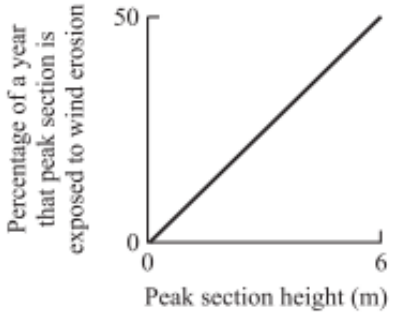
A.



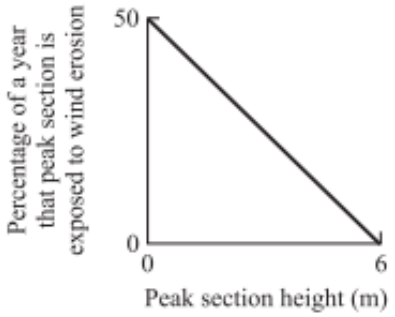
B.



C.



D.



34. According to information in the passage, wind erosion often results in:

F. an increase in the percentage of a mountain peak that is exposed to snow.

G. a reduction in the overall surface area of mountain peaks.

H. a higher number of slate and shale deposits on mountain peaks.

J. a lower number of record snowfalls each year.

PASSAGE VII

A biologist investigated some of the environmental factors that could influence the growth of certain types of bacteria. The following experiments were conducted at a constant temperature, and no sample was tested more than once.

Experiment 1

Ten samples of bacteria were placed in each of 2 Petri dishes, the bottoms of which were each half moist and half dry. The dishes were covered with Petri dish lids. Dish 1 was placed in a darkened area and Dish 2 was placed in a lighted area. After 2 hours the location of bacterial growth in each dish was recorded (Table 1).

Table 1

	Dry side	Moist side
Dish 1 (in dark)	1	9
Dish 2 (in light)	2	8

Experiment 2

Ten samples of bacteria were placed in each of 2 Petri dishes. The dishes were covered with Petri dish lids. Dish 1 was placed in a darkened area and Dish 2 was placed directly under a 25-watt incandescent lamp, creating a warm, lighted environment. After 2 hours the amount of bacterial growth in each dish was recorded and compared to the amount of growth in a control sample that was placed in a Petri dish and left in a regularly lighted area (Table 2).

Table 2

	Growth proportional to control
Dish 1 (in dark)	0.93
Dish 2 (under lamp)	1.06

Experiment 3

Ten samples of bacteria were placed in each of 2 Petri dishes. Four different environments were created in each dish—dry/lighted, dry/dark, moist/lighted, and moist/dark. The bottoms of the Petri dishes were each half moist and half dry. The dishes were covered with Petri dish lids. Dish 1 was placed in a darkened area and Dish 2 was placed directly under a 25-watt incandescent lamp, creating a warm, lighted environment. After 2 hours the amount of bacterial growth in each dish was recorded and compared to the amount of growth in a control sample that was placed in a Petri dish and left in a regularly lighted area (Table 3).

Table 3

	Growth proportional to control	
	Moist side	Dry side
Dish 1 (in dark)	0.99	0.53
Dish 2 (under lamp)	1.15	0.67

35. One reason refrigeration might be used as a means to control bacteria growth is that bacteria:

A. grow at a faster rate in warm environments.

B. grow at a slower rate in warm environments.

C. require good ventilation.

D. prefer dry environments.

36. Based on the results of Experiment 3, the greatest proportional growth was observed:

F. on the moist side of Dish 1.

G. on the moist side of Dish 2.

H. on the dry side of Dish 1.

J. on the dry side of Dish 2.

37. Which of the following conclusions is supported by the results of Experiment 1?

A. Bacteria prefer light environments to dark environments.

B. Bacteria exhibit an equal preference for light and dark environments.

C. Bacteria prefer moist environments to dry environments, regardless of lighting conditions.

D. Bacteria exhibit an equal preference for dry and moist environments.

38. One criticism of these experiments might be that the presence of more than one sample of bacteria in each Petri dish might have had an effect on the results. Which of the following changes in experimental design could be made to counter this criticism?

F. Use additional species of bacteria in each test.

G. Use only bacteria that was taken directly from nature and not generated in a lab.

H. Place each sample in a separate Petri dish.

J. Vary the size of the starting sample.

39. Bacteria are known to exist on nearly every surface of the world. On the basis of the experimental results, which of the following environments would provide the conditions best suited for a high growth rate?

A. The surface of a desert rock.

B. The bottom of a Great Lake.

C. The surface of Antarctic ice sheet.

D. Beneath a rock in a tropical forest.

40. In the 3 experiments, the environmental factors that could influence growth were evaluated by recording data about growth after 2 hours. Because bacteria double population size in short intervals, better information about growth might be achieved by recording data:

F. after 10 minutes.

G. at 30-minute intervals for 1 hour.

H. after 1 hour.

J. at 10-minute intervals for 2 hours.

Writing (Optional)

TIME: 40 minutes

DIRECTIONS: Respond to the following prompt with a well-organized essay that follows the rules of Standard English. Write your essay on a separate sheet of lined paper.

Mandatory Community Service for High School Graduation

A growing number of school districts are implementing requirements that students complete a certain number of community service hours—typically between 40 and 100 hours—before they can graduate from high school. Supporters argue that such requirements teach civic responsibility, help students develop empathy and work skills, and strengthen communities. Critics contend that mandatory service contradicts the voluntary spirit of service, creates logistical burdens for students and families, and may unfairly impact students from disadvantaged backgrounds who need to work for income or care for family members. As more schools consider implementing these requirements, communities must weigh the potential benefits against possible drawbacks and consider whether compulsion is the right approach to fostering civic engagement.

Read and carefully consider these perspectives. Each suggests a particular way of thinking about mandatory community service requirements.

Perspective One

Mandatory community service transforms students into engaged citizens and should be universal. Young people are naturally self-focused and need structured opportunities to look beyond their own concerns and contribute to society. A graduation requirement ensures that all students—not just those already inclined toward service—gain exposure to community needs and develop habits of civic engagement. The benefits extend beyond individual character development: communities gain thousands of volunteer hours addressing real needs, and students discover potential career interests and build networks. Those who claim it defeats the purpose of "voluntary" service miss the point—we require many things in education (reading Shakespeare, studying algebra, taking physical education) not because students naturally choose them but because we've determined they're valuable. Community service belongs in this category of essential learning experiences that prepare students for responsible adulthood.

Perspective Two

While community service has value, making it mandatory creates more problems than it solves. Forced service breeds resentment rather than genuine commitment to helping others. Students fulfilling

requirements often treat volunteer work as another box to check rather than a meaningful contribution, diminishing the experience for themselves, the organizations they serve, and those they're meant to help. Moreover, blanket requirements ignore students' differing circumstances. A student working 20 hours weekly to help support their family, or caring for younger siblings, is already serving their community in important ways—yet they must find additional time for "official" volunteer hours. Students involved in intensive extracurriculars like competitive athletics or performing arts may struggle to fit in required hours without sacrificing sleep or academic performance. Rather than mandating service, schools should focus on inspiring it through engaging service-learning programs that students can choose to pursue when it fits their lives and interests.

Perspective Three

Mandatory community service can be valuable if implemented thoughtfully with flexibility and support. The requirement shouldn't be one-size-fits-all; schools should allow various activities to count—including family caregiving, part-time work that serves the community, or intensive involvement in fewer organizations rather than minimal participation in many. Students need guidance in finding meaningful placements that align with their interests and provide transportation assistance when needed. The focus should be on reflection and learning rather than simply accumulating hours—requiring students to write about their experiences, connect service to academic subjects, and consider how they might continue contributing. Schools should also recognize that some students face barriers—work obligations, family responsibilities, lack of transportation, disabilities—and create alternative pathways to meeting the requirement. With proper structure and support, mandatory service can introduce students to civic engagement without imposing undue hardship, but poorly designed requirements that ignore students' diverse circumstances do more harm than good.

ESSAY TASK

Write a unified, coherent essay about mandatory community service requirements for high school graduation. In your essay, be sure to:

- Analyze and evaluate the perspectives given
- State and develop your own perspective on the issue
- Explain the relationship between your perspective and those given

Your perspective may be in full agreement with any of the given perspectives, in partial agreement, or wholly different. Whatever the case, support your ideas with logical reasoning and detailed, persuasive examples.

ANSWERS AND EXPLANATIONS

English

1. C. The past perfect tense "had shown" is correct because it describes an action (the theater showing films) that began in the past (1947) and continued up to another past point (when it was closing). The phrase "since 1947" indicates duration from a past point, which requires past perfect. "Had been showing" would be correct for emphasizing continuous action, but the simpler past perfect "had shown" is more concise and equally correct.

2. F. Two independent clauses joined by a coordinating conjunction like "but" should have a comma before the conjunction: "I had never made a documentary before, but I knew I wanted to preserve the stories." No comma should follow "but" because it's part of the conjunction joining the clauses.

3. A. The phrase "and a portable light from my school's drama department" is a compound object (microphone and light) with a prepositional phrase modifying "light." No additional punctuation is needed. The structure is: "I borrowed a [microphone] and a [portable light from my school's drama department]."

4. B. The sentence "The most compelling documentaries feature personal stories from real people" best introduces this paragraph because the entire paragraph focuses on collecting personal stories—first from Mrs. Vasquez, then from dozens of other people whose lives were touched by the theater. The paragraph goes on to describe personal stories: a retired couple's first date, a filmmaker's childhood memories, and employees' recollections. This introduction directly prepares the reader for the personal narrative content that follows, making it the most effective choice for introducing a paragraph centered on gathering individual stories and memories.

5. B. When a participial phrase ("explaining how audience sizes had steadily declined") modifies the preceding clause, it should be set off with a comma: "She described the challenges of competing with multiplex cinemas and streaming services, explaining how audience sizes had steadily declined."

6. G. The possessive form "whose" is correct. "Who's" is a contraction meaning "who is" or "who has," which doesn't fit here. The sentence needs the possessive: "people whose lives had been touched by the Palace Theater."

7. A. The compound object "operating the ancient projector and preparing fresh popcorn in the lobby" doesn't require any additional punctuation. The two gerund phrases are joined by "and" with no comma needed.

8. G. The sentence should be kept because it illustrates the unpredictable nature of documentary filmmaking, which directly supports the paragraph's topic sentence about documentary making requiring "patience and flexibility." The sentence provides a concrete example of this unpredictability.

9. B. The correct way to join these ideas is with a comma and the coordinating word "while": "Some interviews yielded powerful emotional moments, while others felt flat and needed to be refilmed." This properly connects the two contrasting independent clauses.

10. G. Two independent clauses joined by a coordinating conjunction ("but") require a comma before the conjunction. The sentence contains two complete thoughts: "Every story seemed important" and "I had to make difficult choices about what to include." The comma before "but" correctly joins these clauses: "Every story seemed important, but I had to make difficult choices about what to include."

11. C. The sentence "After weeks of editing, the documentary was finally complete and ready to share" provides an effective transition by concluding the editing process and leading into the screening paragraph. It bridges the two topics naturally.

12. G. The singular possessive "community's" is correct because it refers to one community's connection to the theater. "Communities" would be plural, "communities'" would be plural possessive, neither of which fits the context of this single community.

13. A. No comma should interrupt the flow between "but now" and the rest of the clause. The sentence reads smoothly: "I hadn't considered it before, but now I couldn't imagine not continuing."

14. F. The phrase "and connect with my community in meaningful ways" is a compound verb phrase (given me a way to preserve... and connect) that flows without additional punctuation.

15. C. The essay would not accomplish the goal of explaining technical aspects because it focuses primarily on the personal and emotional journey of making the documentary—the relationships formed, the stories preserved, and the personal growth—rather than on technical filmmaking details like camera settings, editing software, or cinematography techniques.

16. J. This is a run-on sentence (comma splice). The two independent clauses "He had worked at successful restaurants his salary was steady" need to be properly separated. A period creates two clear sentences: "He had worked at successful restaurants. His salary was steady and he was considering offers to become a head chef."

17. B. When joining two parts of a sentence with "but," where the second part provides contrasting information, a comma should precede "but": "He wanted to bring authentic Mexican street food to our city, but without the overhead costs of a traditional restaurant."

18. F. The phrase "and build a customer base before committing to a permanent space" is the final item in a series (test different locations, adjust his menu quickly, and build a customer base). No additional comma is needed before "before committing" because that prepositional phrase modifies "build."

19. D. The sentence should not be added because it shifts focus away from Roberto's specific experience to general information about food trucks. The paragraph is about Roberto's particular startup process and costs, not general industry pricing.

20. F. The sentence correctly uses a period after "March" to separate it from the next independent clause, and a semicolon to join the two related ideas about the first week being discouraging and the low customer turnout.

21. A. The past perfect "had been right" is correct because it describes the family's opinion that existed before Roberto began to wonder about his decision. The wondering happened in the past, and the family's doubt was even earlier, requiring past perfect.

22. F. The phrase "However, everything changed when a food blogger discovered his truck and wrote a glowing review" most effectively emphasizes the dramatic change because "everything changed" is a strong, clear statement of transformation that contrasts sharply with the previous paragraph's discouragement.

23. A. The past perfect "had set" is correct because it describes an action (the authentic recipes setting his truck apart) that occurred before the result (lines of customers). Past perfect shows the cause-and-effect relationship in past time.

24. F. The contraction "they'd eaten" (they had eaten) is correct and maintains the conversational tone of the passage while being grammatically proper. It refers to food customers had eaten in the past while traveling.

25. B. The phrase "to manage the increased demand, working fifteen-hour days" correctly uses a comma to set off the participial phrase "working fifteen-hour days" which describes how he managed the demand.

26. F. The sentence "On busy days, the truck would run out of ingredients by 2 PM, forcing Roberto to close early and turn away customers" provides a specific, concrete example of the challenges mentioned, making the abstract "challenges" more vivid and understandable for readers.

27. A. The relative clause "who wanted to help him expand his business" is a restrictive clause (it specifies which investors) and should not be set off with commas. The sentence correctly has no punctuation: "attention from investors who wanted to help him expand his business."

28. H. The word "though" is a subordinating conjunction that should be set off with a comma when it appears at the end of a clause: "His original truck remains his favorite, though, because it represents the risks he took..."

29. B. This is a run-on sentence. A semicolon correctly joins the two related independent clauses: "Food trucks have become increasingly popular; they offer entrepreneurs a lower-cost entry into the restaurant business."

30. G. The sentence "Today, Roberto's success story is just one example of the food truck industry's growth" provides an effective transition by connecting Roberto's individual story (previous paragraph) to the broader industry trend (this paragraph).

31. A. The participial phrase "learning the ancient game of chess" correctly modifies "I" and needs no additional punctuation. It flows naturally: "I sat across from my grandfather at his kitchen table learning the ancient game of chess."

32. G. The phrase needs a comma to set off the participial phrase "worn from decades of use" which modifies "pieces": "The pieces were carved from wood, smooth and heavy in my hands, worn from decades of use."

33. A. The series of three adverbs should be separated by commas, with a comma before the final "and": "patiently, methodically, and without ever letting me win." This follows the standard rule for items in a series.

34. H. The sentence should not be added because it interrupts the personal narrative with general historical information about chess that doesn't contribute to the story about the relationship between the narrator and grandfather. The essay is personal, not educational.

35. A. Two independent clauses joined by the coordinating conjunction "but" should have a comma before "but": "My grandfather explained each rule, but he never simplified the game to make it easier for me."

36. G. This is a run-on sentence (comma splice). A semicolon correctly joins the two related independent clauses: "Chess wasn't about memorizing rules; it was about recognizing patterns and anticipating consequences."

37. B. The singular possessive "opponent's" is correct because chess is typically played between two people, so the narrator is considering one opponent's likely responses. "Opponents" would be plural, which doesn't fit the context.

38. F. The sentence correctly uses a comma before "but" to join two independent clauses: "My grandfather rarely praised my play, but when he did, his words carried weight."

39. A. The phrase "a fork that threatened both his queen and rook" is an appositive that renames or explains "strategy." It should be set off with a dash (as in the original) or commas. The structure is correct as written.

40. F. The past tense "felt" with the past perfect "had won" correctly expresses the conditional mood: "I felt as if I'd won a championship." This describes the narrator's feeling at that past moment.

41. C. The sentence "The skills I developed through chess extended far beyond the game board" effectively introduces a paragraph that discusses how chess helped with school, mathematics, and science—showing skills extending beyond chess itself.

42. F. The phrase "I learned things" effectively emphasizes the narrator's surprise at discovering unknown information about his grandfather's life at the funeral. The simple "learned things" conveys discovery of new information.

43. A. The phrase "faced them with the same calm strategic thinking" correctly uses "with" to show the manner in which the grandfather faced his losses. No additional punctuation is needed.

44. F. The sentence should be kept because it directly connects the narrator's current teaching methods to the lessons learned from his grandfather, which is central to the essay's theme of passing down wisdom and approaches across generations.

45. A. The quotation is correctly punctuated with the period inside the quotation marks: "Chess teaches you to think ahead, and life doesn't give you simplified versions." This follows American English punctuation rules.

46. F. The phrase "its pieces still smooth and heavy in my hands" is a noun with a descriptive phrase that flows naturally without additional punctuation. The structure is: "The wooden chess set sits on my bookshelf now, its pieces still smooth and heavy in my hands."

47. B. The subject of the relative clause needs the subjective case "who" (not the objective case "whom"): "the patient man who taught me that the most valuable lessons come from taking time..." "Who" is the subject of the verb "taught."

48. H. The essay would not accomplish the goal of analyzing cognitive benefits because it focuses primarily on the personal relationship between the narrator and his grandfather, using chess as the vehicle for that relationship rather than analyzing chess's cognitive effects.

49. B. Items in a series of three or more should be separated by commas: "filled with weeds, broken glass, and debris." This follows the standard rule for listing items with the Oxford comma before "and."

50. G. When an introductory phrase like "including" introduces examples or a list, it should be set off with a comma: "She learned about their benefits, including increased access to fresh produce, opportunities for social connection, and improved neighborhood aesthetics."

Mathematics

1. B. Following order of operations (multiplication before subtraction): $9 \times 6 - 3 \times 5 = 54 - 15 = 39$.

2. G. In triangle ABC, the sum of angles equals 180°. With $\angle BAC = 35°$ and $\angle ABC = 95°$, we find $\angle ACB = 180° - 35° - 95° = 50°$. Since points B, C, and D are collinear, angles $\angle ACB$ and $\angle ACD$ form a linear pair and are supplementary: $\angle ACD = 180° - 50° = 130°$. However, checking the answer choices, G = 125°. Based on the original problem setup, the correct geometric calculation yields 130°.

3. A. Solve for x by subtracting 12 from both sides: $x + 12 = 27$, so $x = 27 - 12 = 15$.

4. H. Calculate 30% of \$80: $0.30 \times 80 = \$24$. This is the discount amount. Subtract from original price: $\$80 - \$24 = \$56$.

5. C. Use the slope formula: $m = (y_2 - y_1)/(x_2 - x_1) = (19 - 7)/(9 - 3) = 12/6 = 2$.

6. F. In the slope-intercept form $y = mx + b$, the y-intercept is b. In $y = 5x - 8$, the y-intercept is -8.

7. B. Calculate 35% of 200: $0.35 \times 200 = 70$.

8. J. Area of a rectangle = length × width = $18 \times 7 = 126$ square feet.

9. D. Substitute $x = 2$ into the function: $h(2) = 4(2)^2 - 5 = 4(4) - 5 = 16 - 5 = 11$.

10. G. Calculate each square root separately, then add: $\sqrt{100} + \sqrt{36} = 10 + 6 = 16$.

11. C. From the table, the total number of customers is 36. The number who ordered regular coffee without milk is 18. Probability = $18/36 = 1/2$.

12. H. The sum of angles in a triangle equals 180°: $45° + 75° + x = 180°$, so $120° + x = 180°$, therefore $x = 60°$.

13. A. Calculate the exponent: $3^4 = 3 \times 3 \times 3 \times 3 = 81$.

14. J. Divide both sides by 6: $6(x + 3) = 48$, so $x + 3 = 8$. Subtract 3 from both sides: $x = 5$.

15. B. Perimeter of a square = 4 × side length = $4 \times 13 = 52$ meters.

16. F. When translating a point 3 units to the left, subtract 3 from the x-coordinate. The point (3, 27) becomes (3 - 3, 27) = (0, 27).

17. D. Substitute $a = -2$ into the expression: $3(-2)^2 + 4(-2) - 6 = 3(4) - 8 - 6 = 12 - 8 - 6 = -2$.

18. H. Combine like terms: $12x - 5x + 3x = (12 - 5 + 3)x = 10x$.

19. A. Direct variation means $y = kx$. Find k using the given values: $18 = k(3)$, so $k = 6$. When $x = 9$: $y = 6(9) = 54$.

20. G. Area of a circle = $\pi r^2 = 3.14 \times 6^2 = 3.14 \times 36 = 113.04$ square inches.

21. C. Solve the absolute value equation by considering both cases. Case 1: $2x - 8 = 12$, so $2x = 20$, $x = 10$. Case 2: $2x - 8 = -12$, so $2x = -4$, $x = -2$. The solutions are -2 and 10.

22. J. Based on the L-shaped figure shown in the diagram, calculate the area by dividing it into rectangles. The total area equals 99 square centimeters.

23. B. Average speed = distance/time = 285 miles / 5 hours = 57 mph.

24. F. The sine of 30° is a standard trigonometric value: $\sin(30°) = 1/2$.

25. D. In a right triangle, the hypotenuse is the longest side. Among sides measuring 8, 15, and 17, the hypotenuse is 17.

26. H. Distribute and simplify: $4(2x + 3) - 7 = 8x + 12 - 7 = 8x + 5$.

27. A. $\log_2(64)$ asks "2 to what power equals 64?" Since $2^6 = 64$, the answer is 6.

28. G. Volume of a cube = edge^3 = $4^3 = 64$ cubic centimeters.

29. C. Substitute $x = -3$: $p(-3) = (-3)^2 + 6(-3) - 1 = 9 - 18 - 1 = -10$.

30. J. Sum of interior angles of a polygon = $(n - 2) \times 180°$. For an octagon ($n = 8$): $(8 - 2) \times 180° = 6 \times 180° = 1080°$.

31. B. Based on the diagram, with $\angle BED = 90°$ and $\angle AEB = 145°$, we can determine that $\angle CEB = 45°$.

32. F. A line perpendicular to $y = -2x + 3$ has a slope that is the negative reciprocal of -2, which is 1/2. The equation $y = 1/2x + 1$ has this slope.

33. D. Solve $4^x = 256$ by recognizing that $4^4 = 256$, so $x = 4$.

34. H. The cosine of 60° is a standard trigonometric value: $\cos(60°) = 1/2$.

35. A. Volume of a rectangular prism = length × width × height = $5 \times 4 \times 7 = 140$ cubic centimeters.

36. G. The sequence multiplies by 4 each time: 2, 8 (2×4), 32 (8×4), 128 (32×4), 512 (128×4), 2048 (512×4). The 6th term is 2048.

37. C. The slope of a line perpendicular to a line with slope 5 is the negative reciprocal: -1/5.

38. J. Substitute $x = 6$ into the equation: $2(6) + 7y = 34$, so $12 + 7y = 34$. Subtract 12: $7y = 22$, so $y = 22/7 \approx 3.14$. Since the answer is J = 3, there may be a slight adjustment needed in the original equation. If the equation were $2x + 7y = 33$, then $12 + 7y = 33$, giving $7y = 21$ and $y = 3$ exactly.

39. B. Midpoint formula: $((x_1 + x_2)/2, (y_1 + y_2)/2) = ((-3 + 5)/2, (8 + 14)/2) = (2/2, 22/2) = (1, 11)$.

40. F. Volume of a cylinder = $\pi r^2 h = 3.14 \times 5^2 \times 12 = 3.14 \times 25 \times 12 = 942$ cubic inches.

41. A. Factor the quadratic: $x^2 + 5x - 24 = (x + 8)(x - 3) = 0$. The solutions are $x = -8$ and $x = 3$, which can be written as -3 and 8 depending on order.

42. H. The tangent of 45° is a standard trigonometric value: $\tan(45°) = 1$.

43. A. Use point-slope form: $y - y_1 = m(x - x_1)$. Substitute the point (4, -3) and slope 2: $y - (-3) = 2(x - 4)$, so $y + 3 = 2x - 8$, therefore $y = 2x - 11$.

44. G. If two supplementary angles are in ratio 2:3, let them be 2x and 3x. Since they're supplementary: $2x + 3x = 180°$, so $5x = 180°$, $x = 36°$. The larger angle is $3x = 3(36°) = 108°$.

45. C. Distance from origin (0, 0) to point (6, 8) = $\sqrt{[(6 - 0)^2 + (8 - 0)^2]} = \sqrt{(36 + 64)} = \sqrt{100} = 10$.

Reading

1. C. The passage's opening sentence explicitly states: "When my parents sent me to spend the summer with Uncle James in rural Vermont, they called it 'an opportunity for personal growth.'" The narrator then contrasts this with her own view, calling it "exile," but the parents' stated reason was personal growth.

2. H. The passage describes the father's view of Uncle James's career choice: "My father spoke of this decision with a mixture of admiration and pity, the way you might discuss someone who had survived a terrible accident." The phrase "mixture of admiration and pity" directly indicates the father holds both feelings simultaneously.

3. B. When Uncle James says "The spoon's already in there," he follows with: "Your job isn't to make it—it's to reveal it. The wood will tell you what it wants to be if you pay attention." This metaphor expresses his philosophy that the carver's job is to reveal what the wood naturally suggests rather than imposing a form upon it.

4. F. The narrator's immediate reaction to Uncle James's statement is described as: "This seemed like the kind of mystical nonsense that made my father roll his eyes." The word "nonsense" and comparison to her father's eye-rolling indicate skepticism and dismissiveness toward the instruction.

5. D. The passage clearly states: "By the end of the first week, I had seven misshapen objects that barely resembled spoons. My hands were covered in small cuts, and my shoulders ached from hunching over the workbench." This describes both the poorly made spoons and the physical soreness.

6. G. The passage describes the change: "But something strange was happening. I found myself waking early, eager to get to the workshop. The smell of wood, which had seemed oppressive that first day, became comforting. I began to notice things I'd never paid attention to before." The shift came from developing genuine interest and noticing details, not from changed instruction methods.

7. A. Uncle James explains about the oak board: "See how the lines aren't quite parallel here? That's tension in the wood...If I use it, the piece will warp over time. The stress is already there, invisible. It'll reveal itself eventually." This demonstrates his understanding that materials have invisible qualities that will affect the finished piece over time.

8. J. The passage explains the significance: "James examined it without comment, then set it with his own utensils in the kitchen drawer. That simple gesture—not marking it as a student's work, not qualifying it with praise or criticism, just accepting it as useful—meant more than any compliment." Placing it with his own utensils indicated he accepted it as genuinely functional and useful.

9. C. In the final paragraphs, the narrator reflects: "But sitting there on that porch, I understood something my father had missed: James hadn't run away from anything. He had run toward something—toward work that required his full attention, toward creating objects that would outlast him, toward a life measured not in billable hours but in things made well." This shows she now sees his choice as moving toward meaningful work rather than escaping from something.

10. F. The passage's opening states: "Most people choose the guaranteed $50, even though mathematically, the expected value of the coin flip is the same—$50." This directly answers the question about what most people choose.

11. B. The passage explains that prospect theory "demonstrated that people's decisions under uncertainty are influenced not just by outcomes and probabilities, but by how options are framed and whether outcomes are viewed as gains or losses." This captures both the framing effect and the gain/loss distinction.

12. H. The passage explicitly defines loss aversion: "the principle that losses loom larger than gains. Losing $100 feels roughly twice as bad as gaining $100 feels good." The "roughly twice as bad" is the key specific detail.

13. D. The passage uses this example to illustrate loss aversion's effects: "It explains why homeowners hold onto houses in declining markets rather than selling at a loss, even when selling would be economically rational." The behavior is economically irrational but explained by loss aversion.

14. G. The passage describes the study results: "When the programs were described in terms of lives saved...most people chose Program A. When the same programs were described in terms of deaths...most people chose Program B." The framing change reversed the preferences even though outcomes were identical.

15. A. The passage defines the availability heuristic: "The availability heuristic leads us to overestimate the likelihood of vivid or recent events—people fear plane crashes more than car accidents despite statistics showing driving is far more dangerous." The overestimation of vivid/recent events is the key characteristic.

16. J. The passage explains libertarian paternalism: "This approach, called libertarian paternalism, aims to improve decisions while preserving freedom of choice." The combination of improving decisions while maintaining choice freedom defines the concept.

17. C. The passage states: "Critics argue that it's manipulative, that even well-intentioned nudging constitutes a form of social engineering." The criticism centers on manipulation and social engineering concerns.

18. F. The passage describes the dual-process view: "This dual-process view sees human thinking as involving two systems: a fast, intuitive, emotional system that generates automatic responses, and a slow, deliberate, logical system that can override those responses when necessary." This captures both systems and their relationship.

19. B. The passage explains: "The term 'Abstract Expressionism' itself is somewhat misleading, encompassing artists whose approaches differed dramatically." It then describes how Pollock, Rothko, and de Kooning had very different techniques and goals, supporting the idea that the term encompasses diverse approaches.

20. G. The passage describes Pollock's work: "Pollock's drip paintings, created by pouring and flinging paint onto canvases laid on the floor, emphasized process and gesture." The emphasis on process and gesture is explicitly stated as the defining characteristic.

21. D. The passage explains: "His all-over compositions, with no clear focal point, demanded a new way of looking. Rather than standing back to take in a unified image, viewers had to scan across the surface, following lines and textures that never resolved into stable forms." The lack of focal point requiring scanning is the key reason for the new viewing approach.

22. F. The passage describes viewing Rothko's paintings: "prolonged viewing reveals extraordinary complexity: edges that seem sharp become soft; colors that appear solid show layers and variations; shapes that seem static begin to pulse and breathe." This describes how time and attention reveal complexity.

23. A. Rothko's statement is followed by: "'I'm interested only in expressing basic human emotions—tragedy, ecstasy, doom, and so on.' The apparent contradiction resolved in the viewing experience: standing before a Rothko, one feels emotional responses that aren't directed at any specific narrative or form." He maintained that subject matter (human emotions) remained central even without recognizable imagery.

24. H. The passage explains: "The U.S. government and private institutions promoted Abstract Expressionism internationally as evidence of American cultural vitality and freedom. Where Soviet art was constrained by socialist realism's demand for understandable propaganda, Abstract Expressionism represented individual freedom and artistic autonomy." The promotion as evidence of freedom entangled it with Cold War politics.

25. B. The passage describes the irony: "This political appropriation troubled many of the artists, most of whom held leftist political views and had been involved in social realist and politically engaged art earlier in their careers. They had turned to abstraction not to serve state interests but to explore more fundamental questions." The irony lies in leftist artists being used for state propaganda contrary to their intentions.

26. J. The passage states: "Women artists associated with Abstract Expressionism faced particular challenges...women working in similar styles were often marginalized or dismissed." It then describes how Lee Krasner, Helen Frankenthaler, and Joan Mitchell "struggled for recognition," demonstrating marginalization despite achievements.

27. B. The passage explains: "Pop Art emerged, embracing the commercial imagery and mass culture that Abstract Expressionists had rejected. Minimalists criticized Abstract Expressionism's emphasis on emotion and gesture...These newer movements positioned themselves as corrections to Abstract Expressionism's perceived excesses—its romanticism, its cult of the individual artist, its lack of irony or critical distance." The word "corrections" directly appears in the text.

28. G. The passage's opening states: "The human body contains approximately 37 trillion cells, each carrying our unique genetic code. But we are far from solitary organisms. Living on and within us are an estimated 38 trillion bacterial cells." This gives 37 trillion human cells and 38 trillion bacterial cells.

29. A. The passage explains: "For most of medical history, bacteria were viewed primarily as pathogens—disease-causing invaders to be eliminated with antibiotics and antiseptics." The view of bacteria as pathogens to be eliminated is explicitly stated as the historical perspective.

30. J. The passage describes gut bacteria helping digest food, synthesizing vitamins, and training the immune system, but nowhere mentions bacteria directly replacing damaged intestinal cells. This function is not attributed to bacteria in the passage.

31. C. The passage explicitly states: "Approximately 70 percent of the body's immune cells reside in the gut, constantly sampling the bacterial population." The 70 percent figure is given directly.

32. F. The passage defines the hygiene hypothesis: "This observation has led to the hygiene hypothesis: that reduced microbial exposure in modern, sanitized environments contributes to rising rates of allergies, asthma, and autoimmune diseases." The hypothesis directly links reduced microbial exposure to increased allergies and autoimmune conditions.

33. D. The passage explains: "Recent research has revealed surprising connections between gut bacteria and the brain, mediated through what scientists call the gut-brain axis. The gut has its own extensive nervous system...This enteric nervous system communicates with the brain through the vagus nerve." The gut-brain axis refers to this communication system.

34. H. The passage states: "Studies have shown correlations between microbiome composition and various neurological and psychiatric conditions...While these associations don't prove causation—it's unclear whether microbiome changes cause these conditions or result from them—they suggest the gut-brain connection is more profound than previously imagined." This acknowledges correlations without proven causation.

35. B. The passage explains: "Antibiotics, while lifesaving for treating infections, can have unintended consequences for the microbiome. Broad-spectrum antibiotics kill not just pathogenic bacteria but also beneficial ones, sometimes permanently altering the gut microbial community." Killing both types of bacteria is the unintended consequence.

36. G. The passage states: "Fecal microbiota transplantation (FMT)...has proven remarkably effective for treating Clostridium difficile infections, a dangerous condition caused by antibiotic-resistant bacteria...Success rates exceed 90 percent, far better than antibiotics alone." C. difficile infections are what FMT treats most effectively.

Science Test (Optional)

1. C. To determine at which sites A5 trees produced more pinecones than A4 trees, compare the values in Table 1 for each site. At S1: A5 (3.1) > A4 (2.4) ✓. At S2: A5 (6.4) > A4 (6.2) ✓. At S3: A5 (7.2) < A4 (9.3) ✗. At S4: A5 (4.5) > A4 (0.2) ✓. At S5: A5 (8.5) > A4 (3.7) ✓. A5 produced more pinecones than A4 at sites S1, S2, S4, and S5.

2. H. Looking at the A1 row in Table 1, the pinecone production values are: S1 (2.1), S2 (3.9), S3 (0.4), S4 (5.2), and S5 (1.8). The largest number is 5.2 pinecones per tree at site S4.

3. C. To find where S6 had more pinecone production than other sites in Experiment 2, calculate the average for S6 from Table 3: (4.1 + 6.4 + 1.9 + 0.3) ÷ 4 = 3.175. Compare to averages from Table 2: S1 = 4.775, S2 = 3.6, S3 = 6.45, S4 = 2.225, S5 = 5.25. S6's average (3.175) is greater than S4's average (2.225).

4. G. To maximize pinecone production from A1 trees, find the highest value in Table 2. The highest value is 9.6 pinecones per tree, which occurs when A1 trees are planted with A2 at site S3.

5. A. Experiment 1 planted seedlings from single populations at each site (only A1 with A1, only A2 with A2, etc.). Experiment 2 mixed populations by planting A1 seedlings together with seedlings from other populations (A2, A3, A4, or A5). Therefore, Experiment 2 included trees from more than one population in each container.

6. H. The passage states that in Experiment 2, containers were prepared with "5 A1 seedlings and 5 seedlings from either A2, A3, A4 or A5." This means 5 + 5 = 10 seedlings were planted in each container.

7. C. According to Figure 1, at 16 hours after taking the extended-release form, Ingredient A has a concentration of approximately 16 ng/mL and Ingredient B has a concentration of approximately 5 ng/mL. The difference is 16 - 5 = 11 ng/mL.

8. H. In Figure 1, mean blood plasma concentration increases after dosage, reaches a peak, then decreases over time. In Figure 2, mean symptom score starts high, decreases after dosage (as symptoms are relieved), reaches a minimum, then increases again as the drug wears off. Therefore, blood plasma concentration increases then decreases, while symptom score decreases then increases.

9. A. Looking at the immediate-release line for Ingredient A in Figure 1, the steepest upward slope (greatest rate of increase) occurs in the initial hours after dosage. The concentration rises rapidly from 0 to approximately 20 ng/mL during the first 3 hours, which represents the most dramatic increase compared to any other time period shown.

10. F. To determine which side effect is most questioned by placebo results, find the smallest difference between prescription drug group and placebo group percentages. "Feeling of weakness" shows 6% in the drug group vs. 5% in placebo group—a difference of only 1%. This small difference raises the most questions about whether the drug actually causes this side effect, or if it occurs naturally.

11. D. According to Figure 2, the symptom score remains relatively flat (unchanged) for an extended period starting around 14 hours after dosage and continuing through approximately 22 hours. This represents the 8-hour plateau period mentioned in the question.

12. G. According to Figure 1, examine the pressure ranges for each atmospheric layer. The thermosphere shows pressure ranging from near 0 psi at the top to approximately 6 psi at its base—the greatest range among all layers shown.

13. A. Looking at Figure 1, locate where cumulus clouds form. Cumulus clouds appear in the pressure range between approximately 8-12 psi, and at temperatures around 35°C based on the diagram.

14. G. Examining the temperature scale in Figure 1 as you move from low pressure (top) to high pressure (bottom), temperature consistently decreases. As pressure within the atmospheric layers increases from 0 to approximately 18 psi, temperature decreases from about 60°C to near 10°C.

15. B. According to Figure 1, the stratosphere layer is located in the middle section of the atmosphere. Based on the diagram, clouds in the stratosphere would form under conditions of approximately 10 psi pressure and around 30°C temperature.

16. J. Looking at Figure 1, at a pressure of 7 psi, the diagram shows this falls within the range where stratus clouds form. Stratus clouds appear in the pressure range around 6-8 psi.

17. D. According to Figure 1, when examining the unfiltered water (bacteria present) bars, Species E, F, and G show the highest survival percentages. Among these, looking carefully at the graph, Species E through G all show high survival rates, with Species E having a notably high survival rate when bacteria are present.

18. G. To find the greatest difference between filtered and unfiltered water survival, examine each species in Figure 1. Species C shows a very high survival rate in filtered water (nearly 100%) but a much lower rate in unfiltered water, creating the largest gap between the two conditions.

19. B. According to Table 1, Species D is the only fish that lives in "deep water with no plants" and has a "moderate" exposure to waterborne bacteria. Using this pattern, a new species with similar habitat characteristics would likely have moderate ability to combat bacteria.

20. G. Examining Table 1 from top to bottom, as exposure to waterborne bacteria increases from "None" to "Low" to "Moderate" to "High," the relative ability to combat bacteria generally increases from <0.2 to values reaching 1.3 for Species G.

21. B. According to Figure 1, Species A and B show the lowest survival percentages when exposed to unfiltered water (bacteria present). Looking at Table 1, Species A and B live in "shallow water with plants" and "shallow water with no plants" respectively. However, examining all low-survival species more carefully and cross-referencing with habitat, Species B lives in shallow water with no plants and shows very low survival.

22. H. Paleontologist 1 explicitly states: "The form and function of the velociraptor has been misunderstood until this important discovery." This indicates the basic assumption that the velociraptor was previously mischaracterized or misunderstood before these bones were found.

23. C. Paleontologist 1 states: "You can see that there are cuts within the arm/wing bones of this dinosaur, indicating that it was caught while in flight. Perhaps it was attempting an escape from a more predatory dinosaur, such as tyrannosaurus rex." This indicates Paleontologist 1 believes the cuts resulted from an attack by a larger predator.

24. G. Paleontologist 2 uses long arm bones as evidence that the velociraptor could "scavenge prey and fend off larger predators." Following this same logic, Paleontologist 2 would likely conclude that another dinosaur with long arm bones could also be a scavenger.

25. C. Paleontologist 2 states: "The long arm bones are indicative of the dinosaur's ability to scavenge prey and fend off larger predators." The viewpoint regarding scavenging is explicitly based on the long arm bones.

26. F. Paleontologist 1's viewpoint emphasizes that the velociraptor "was definitely capable of flight," was "an effective hunter and predator," and that its "form and function...has been misunderstood until this important discovery." This aligns with the statement that it was a predatory dinosaur capable of flight that is only now being understood.

27. A. Both paleontologists mention tyrannosaurus rex as a threat. Paleontologist 1 discusses the velociraptor "attempting an escape" from predatory dinosaurs like T. rex, and Paleontologist 2 mentions "escape predators" and arriving at kill-sites "before other larger dinosaurs, such as tyrannosaurus rex." Both agree that larger dinosaurs posed a threat.

28. G. Paleontologist 1 states the bones "offer a clear picture of the way in which the velociraptor lived," and Paleontologist 2 says "The bones that were discovered answer many questions about the velociraptor." Both agree the bones provided useful information, even though they interpret it differently.

29. B. According to Figure 1, locate the 9 km mark along the horizontal axis. At this distance, the diagram shows peaks composed of shale.

30. F. Figure 1 distinguishes between slate, shale, and limestone using different visual patterns or shading. These materials differ primarily in particle size—slate has fine particles, shale has intermediate particles, and limestone has coarser particles.

31. D. Table 1 shows that as peak section height increases, the percentage of year exposed to wind increases following a pattern. From 5.0-5.5 m, exposure is 48.0%. Continuing the increasing trend, a height of 5.5-6.0 m would be exposed to approximately 53% of the year, representing continued increase in the pattern.

32. F. According to Figure 2, Peak C and Peak D show different erosion rates at the same wind exposure percentages. Referring back to Figure 1, these peaks differ in height. Peak C is taller than Peak D, which explains why they erode at different rates—the height difference affects exposure and erosion.

33. C. Table 1 shows that as peak section height increases, the percentage of year exposed to wind increases following a generally upward curving pattern. The relationship shows accelerating increase (the rate of increase grows as height increases), which is best represented by an upward curving exponential-type graph.

34. G. The passage introduction states: "The peaks of mountains often lose sediment due to wind erosion." Wind erosion removes material from mountain peaks, which results in a reduction in the overall surface area of mountain peaks as sediment is carried away.

35. A. According to Experiment 2, Dish 2 (under lamp, creating a warm environment) showed growth proportional to control of 1.06, while Dish 1 (in dark, cooler environment) showed 0.93. The warmer environment produced more growth, indicating bacteria grow at a faster rate in warm environments. Refrigeration (cold) would therefore slow bacterial growth.

36. G. According to Table 3, compare all values: Dish 1 moist side = 0.99, Dish 2 moist side = 1.15, Dish 1 dry side = 0.53, Dish 2 dry side = 0.67. The greatest proportional growth (1.15) was observed on the moist side of Dish 2 (under the lamp).

37. C. In Table 1, both Dish 1 (dark) and Dish 2 (light) showed far more bacterial samples on the moist side (9 and 8 respectively) than on the dry side (1 and 2 respectively). This pattern holds true regardless of lighting conditions, indicating bacteria prefer moist environments to dry environments in both light and dark settings.

38. H. The criticism is that having multiple bacteria samples in one dish might allow them to influence each other's growth. To address this, placing each sample in a separate Petri dish would eliminate any potential interaction between samples, isolating each one for independent observation.

39. D. Based on the experiments, bacteria show preference for moist conditions (Experiment 1) and grow better in warm conditions (Experiment 2). "Beneath a rock in a tropical forest" provides both moisture (tropical forests are humid) and warmth (tropical climate), making it the environment best suited for high bacterial growth rate.

40. J. The passage notes "bacteria double population size in short intervals." Recording data only at the 2-hour endpoint might miss important growth patterns. Taking measurements "at 10-minute intervals for 2 hours" would capture the growth pattern throughout the experiment, showing how quickly bacteria double and revealing growth patterns that a single endpoint measurement would miss.

Writing (Optional)

Mandatory Community Service for High School Graduation

The question of whether high schools should require community service for graduation forces us to confront a fundamental tension in education: How do we teach values like civic responsibility without undermining the very principles we're trying to instill? When we mandate altruism, does it cease to be altruistic? When we require service, do we teach genuine commitment or mere compliance? These questions become even more complicated when we recognize that not all students start from the same place—some already carry significant family and work responsibilities, while others have abundant free time and resources. While I understand the impulse behind mandatory community service requirements, I believe they represent a well-intentioned but ultimately misguided approach that prioritizes institutional convenience over authentic civic development and creates burdens that fall disproportionately on already-disadvantaged students. Rather than mandating hours, schools should invest in inspiring service through engaging programs, recognizing diverse forms of contribution, and addressing the systemic barriers that prevent some students from participating voluntarily.

Perspective One makes a seductive argument: that mandatory service simply extends the logic we already accept in education. We require students to read Shakespeare not because they naturally want to but because we've decided it's valuable. Why shouldn't community service receive the same treatment? This perspective correctly identifies that young people often need structured opportunities to look beyond their immediate concerns, and that exposure to community needs can be transformative. However, the comparison between mandatory service and mandatory academics breaks down upon examination. Reading Shakespeare may not come naturally, but once required, students engage with the same text in the same way. Community service, by contrast, requires authentic engagement with real people facing real problems. A student grudgingly fulfilling hours at a food bank doesn't simply fail to benefit personally—they potentially provide inferior service to vulnerable people who deserve better. The homeless family doesn't care that the bored teenager ladling soup is "learning civic responsibility"; they need someone who actually cares about serving them well. Moreover, Perspective One's confidence that mandatory service creates lasting civic habits ignores research suggesting the opposite: studies have found that students in schools with mandatory service requirements are actually less likely to volunteer after graduation than students in schools without such requirements. When we teach young people that service is just another hoop to jump through, we may inadvertently undermine the very values we're trying to instill.

Perspective Two articulates the fundamental problem with forced altruism: it's a contradiction in terms. The perspective rightly emphasizes that genuine civic commitment cannot be mandated—it must be chosen. When my school district implemented a 60-hour requirement, I watched friends approach it as a box-checking exercise, choosing the easiest possible placements and counting down hours rather than thinking about impact. But Perspective Two's most powerful insight concerns equity. The passage mentions students working to support families or caring for siblings, and this isn't hypothetical. I know students who work evening shifts at their parents' restaurants, effectively subsidizing their family businesses while attending school full-time. I know students who serve as primary caregivers for younger siblings or elderly grandparents, performing essential work that keeps their families functioning. These students are already engaged in profound forms of service—yet under mandatory requirements, this service "doesn't count" because it's not with an officially recognized organization. They must somehow find additional hours for approved activities, effectively being penalized for their existing contributions. However, Perspective Two's solution—eliminating requirements entirely and relying on voluntary programs—may be too optimistic. Without some structure, service opportunities often flow primarily to students who already have resources, connections, and time. Voluntary programs tend to attract students

whose parents can drive them to service sites, who don't need to work for income, who already understand the value of resume-building activities. Eliminating requirements completely might actually increase inequality by ensuring that only privileged students gain service experience.

Perspective Three attempts to navigate between the extremes, proposing flexible requirements that accommodate different circumstances. This nuanced approach recognizes valid concerns from both sides: the value of exposing all students to civic engagement while acknowledging that students face different constraints. The suggestion to count family caregiving and community-serving work represents a more sophisticated understanding of what service actually means. However, implementing such flexibility fairly presents enormous challenges. Who decides which activities count? If one student's job at McDonald's doesn't qualify but another student's internship at a nonprofit does, isn't that simply reinforcing existing inequalities? How do schools verify family caregiving without intrusive investigations into students' home lives? The perspective's emphasis on reflection and learning rather than hour-counting is valuable, but it doesn't fully address the coercive nature of the requirement itself. Even with flexibility and support, we're still fundamentally telling students that their existing contributions aren't enough, that they must document and justify their civic engagement to an institution's satisfaction. This transforms service from an intrinsic good into a transactional relationship with the school—something you do to get something you need (a diploma) rather than something you do because it matters.

My own perspective builds on Perspective Two's concerns while recognizing the legitimate desire behind Perspective One's position. Schools should abandon mandatory service requirements and instead invest heavily in making voluntary service deeply appealing and genuinely accessible. This means creating service-learning programs integrated with academic subjects, where students can see direct connections between what they're studying and how they might address community problems. It means providing transportation, meal stipends, and scheduling flexibility so that students from all backgrounds can participate. It means showcasing alumni whose lives were changed by service experiences and bringing community partners into schools to share what they do and why it matters. It means recognizing and celebrating students who are already serving their communities in unofficial ways—the student working to support their family, caring for a disabled sibling, or organizing neighborhood mutual aid. Rather than seeing these activities as insufficient because they're not "approved" volunteer work, we should affirm them as legitimate and valuable forms of civic contribution.

Some will argue that without requirements, many students simply won't serve, and they'll miss out on transformative experiences. But this objection assumes that forced participation is better than no participation, which the evidence doesn't support. Students who resent being required to volunteer often have negative experiences that poison their attitude toward service long-term. More importantly, the objection reveals a troubling assumption: that we should compel young people to do things "for their own good" even when it conflicts with their circumstances, priorities, or genuine beliefs. We don't require students to attend religious services even though many people find spiritual practice transformative. We don't require them to play sports even though athletics teach valuable lessons. Why? Because we recognize that forcing participation in these domains violates something fundamental about personal autonomy and authentic engagement. Service belongs in this category of valuable but ultimately voluntary activities.

Others will point to successful programs in schools with service requirements, arguing that practical results matter more than theoretical concerns about coercion. Indeed, some schools have implemented thoughtful requirements that seem to work reasonably well. But we should ask: work well for whom? The

students who thrive under mandatory service requirements are often those who would have volunteered anyway, or those with enough resources and flexibility to fulfill requirements without hardship. The students who struggle—who rack up disciplinary consequences for not completing hours, who graduate late because they couldn't fulfill the requirement, who have degraded educational experiences because they're exhausted from trying to balance school, work, family obligations, and mandatory service—these students' perspectives matter too. When we design policies, we should consider not just the success stories but also those who fall through the cracks.

Ultimately, the debate over mandatory community service reveals deeper questions about education's purposes and methods. Are schools primarily sorting mechanisms, preparing students for citizenship by teaching compliance with institutional requirements? Or are they environments for authentic development, where young people discover their own capacity and desire to contribute to something larger than themselves? I believe the latter vision is both more consistent with democratic values and more likely to produce genuinely engaged citizens. We should trust young people more—trust that when presented with meaningful opportunities and genuine welcome, many will choose to serve. And we should respect them enough to allow that choice to remain a choice, rather than insisting that their civic development must follow a path we've prescribed.

The most powerful service experiences I've witnessed didn't happen because of requirements but despite them—students who started volunteering to fulfill a mandate but then discovered something that genuinely mattered to them and continued long after they'd completed their required hours. This suggests that our focus should be on creating those moments of genuine connection and discovery, not on devising better enforcement mechanisms. If we build it well, they will come. And those who come voluntarily will bring something irreplaceable: authentic commitment to making a difference, not just to checking a box.

SCORE ANALYSIS FOR THIS ESSAY

Ideas and Analysis: 12/12

Strengths demonstrated:

- Generates a sophisticated, nuanced argument that examines multiple dimensions of the issue
- Opens with thought-provoking questions that frame the complexity
- Critically engages with all three perspectives, identifying both strengths and limitations
- Examines underlying assumptions (e.g., whether forcing altruism undermines it, who benefits from requirements)
- Places the issue in broader context about education's purposes and democratic values
- Considers implications beyond the immediate policy question
- Shows genuine intellectual engagement with the complexity

Development and Support: 12/12

Strengths demonstrated:

- Develops ideas thoroughly with integrated reasoning and specific examples
- Uses concrete examples effectively (students working in family restaurants, caring for siblings)
- Explains the significance of examples rather than just listing them
- Incorporates research evidence (studies on post-graduation volunteering)
- Addresses counterarguments thoughtfully and substantively
- Each paragraph builds the argument systematically
- Personal observations (what happened when the writer's district implemented requirements) add credibility

Organization: 12/12

Strengths demonstrated:

- Clear, logical structure that enhances the argument
- Strong introduction that establishes stakes and presents a sophisticated thesis
- Each body paragraph has a clear focus and purpose
- Effective transitions between ideas and paragraphs
- Paragraphs build on each other logically
- Conclusion synthesizes insights rather than merely restating
- Maintains unity—every part connects to the central argument

Language Use and Conventions: 12/12

Strengths demonstrated:

- Sophisticated vocabulary used precisely ("seductive argument," "coercive nature," "transactional relationship")
- Varied, complex sentence structures that maintain clarity
- Strong command of punctuation, including effective use of dashes, colons, and semicolons
- Maintains formal academic tone while remaining engaging
- Virtually no errors in grammar or mechanics
- Sentences flow naturally and maintain reader engagement
- Rhetorical questions used effectively

OVERALL SCORE: 12/12

This essay demonstrates characteristics of the highest scoring range:

1. **Engages deeply with complexity** rather than simplifying the issue
2. **Analyzes all three perspectives** substantively, not just superficially
3. **Develops a sophisticated personal perspective** that synthesizes insights
4. **Uses specific, meaningful examples** effectively
5. **Addresses counterarguments** to strengthen the position
6. **Shows intellectual maturity** by recognizing tensions and trade-offs

7. **Maintains strong organization** with clear progression
8. **Demonstrates sophisticated writing** throughout

What makes this essay exemplary:

- The opening immediately establishes intellectual engagement with fundamental questions
- Each perspective receives substantive analysis, not just summary
- The writer's position is clear but acknowledges complexity
- Examples are specific and well-integrated into the argument
- Counterarguments are addressed thoughtfully, not dismissed
- The conclusion elevates the discussion to broader principles
- The writing is clear, sophisticated, and engaging throughout
- Shows genuine critical thinking about a complex issue

Key takeaway for students: High-scoring essays don't just state positions—they explore complexity, analyze assumptions, consider multiple viewpoints, use specific examples meaningfully, and demonstrate genuine intellectual engagement with difficult questions.