MIDDLE LEVEL SSAT PRACTICE TEST 11

Writing Sample

Time – 25 Minutes

Directions: Schools would like to get to know you better through an essay or story you write. Please select and respond to one of the two topics provided. If you choose Topic A, write a creative story. If you choose Topic B, write a personal essay. Fill in the circle next to your topic choice.

Topic A: You wake up one morning to discover that you can suddenly understand what animals are saying. Write a story about your day and what you learn from this unexpected ability.

Topic B: Describe a tradition or routine in your family or community that is meaningful to you. Explain why this tradition matters and what it teaches you about yourself or your values.

Section 1: Quantitative

Time – 30 Minutes

25 Questions

Directions: Following each problem in this section, there are five suggested answers. Work each problem in your head or in the blank space provided. Then select the best answer.

1. What is 560 ÷ 40?

A. 14

B. 13

C. 15

D. 16

E. 12

2. If k − 87 = 134, then k =

A. 47

B. 87

C. 221

D. 134

E. 197

3. A sequence follows the rule: subtract 17 from the previous number. If the first number is 125, what is the 9th number?

A. 57

B. 40

C. 23

D. 74

E. –11

4. What is the area of a rectangle with length 43 and width 27?

A. 70

B. 1161

C. 140

D. 1150

E. 1200

5. If $38x = 494$, then $x =$

A. 456

B. 532

C. 38

D. 13

E. 12

6. A school has 240 students. If 7/12 of them play sports, how many students play sports?

A. 140

B. 120

C. 160

D. 100

E. 180

7. What is $173 - 23 \times 6 + 15$?

A. 1020

B. 1035

C. 50

D. 1008

E. 35

8. A jar contains 9 yellow candies, 11 orange candies, and 16 purple candies. What is the probability of selecting a yellow candy?

A. 9/36

B. 11/36

C. 16/36

D. 1/9

E. 1/4

9. Which of the following is equivalent to 0.55?

A. 55/10

B. 11/20

C. 5/5

D. 1/55

E. 55/1000

10. A circle has a diameter of 98. What is its radius?

A. 196

B. 98

C. 294

D. 49

E. 24.5

11. If $29y + 59 = 262$, then $y =$

A. 7

B. 321

C. 29

D. 59

E. 8

12. A bicycle originally costs $1200. It's now on sale for 35% off. What is the sale price?

A. $1165

B. $420

C. $780

D. $900

E. $600

13. What is $43^2 - 40^2$?

A. 3

B. 1600

C. 1849

D. 9

E. 249

14. If $t > 250$ and $t < 255$, which could NOT be the value of t?

A. 251

B. 255

C. 252.5

D. 253

E. 254

15. A recipe requires 30 cups of broth to make 45 servings. How many cups are needed for 72 servings?

A. 45

B. 60

C. 54

D. 48

E. 36

16. What is 37/49 − 29/49?

A. 8/49

B. 66/49

C. 29/49

D. 8/98

E. 37/98

17. Round 31,847 to the nearest hundred.

A. 32,000

B. 31,850

C. 31,800

D. 31,900

E. 31,750

18. What is the least common multiple (LCM) of 36 and 54?

A. 18

B. 1944

C. 72

D. 90

E. 108

19. If the pattern continues: 24, 72, 216, 648, ___, what is the next number?

A. 1296

B. 1944

C. 1080

D. 864

E. 2592

20. A triangle has a base of 50 and a height of 41. What is its area?

A. 91

B. 2050

C. 182

D. 1025

E. 820

21. What is 92% of 375?

A. 345

B. 92

C. 360

D. 320

E. 375

22. If $41 \times j = 533$, then $j =$

A. 12

B. 14

C. 13

D. 41

E. 492

23. A number is divided by 15, then 21 is added. The result is 30. What is the number?

A. 465

B. 180

C. 150

D. 225

E. 135

24. The ratio of soccer balls to footballs in a gym is 6:5. If there are 90 soccer balls, how many footballs are there?

A. 60

B. 75

C. 72

D. 90

E. 54

25. What is $85 + 17^2 - 32$?

A. 289

B. 374

C. 70

D. 342

E. 85

Section 2: Reading

Time – 40 Minutes

40 Questions

Directions: Read each passage carefully and then answer the questions about it. For each question, decide on the basis of the passage which one of the choices best answers the question.

Passage 1

Bioluminescence in the deep ocean is far more than a beautiful light show—it's a survival strategy that has evolved independently in numerous marine species. In the pitch-black depths where sunlight never penetrates, more than 90% of creatures produce their own light through chemical reactions.

The most common reason for bioluminescence is counterillumination, a form of camouflage. Many fish have light-producing organs on their undersides that match the faint light filtering down from above. When predators look up, the fish's glowing belly blends with the surface light, making them nearly invisible. This defense works only at specific depths, so these fish must adjust their light output as they move up or down.

Other creatures use light offensively. The anglerfish dangles a bioluminescent lure to attract prey close enough to strike. Some species of squid shoot glowing clouds when threatened, confusing predators while they escape in darkness. Certain jellyfish produce startling light flashes when disturbed—a "burglar alarm" effect that attracts larger predators to harass their attacker.

Communication through light is also crucial. Many deep-sea species use specific flash patterns to identify potential mates. Each species has its own unique pattern, preventing wasteful courtship with the wrong species in an environment where encounters are rare.

The chemistry behind bioluminescence involves luciferin molecules reacting with oxygen, catalyzed by luciferase enzymes. This reaction is remarkably efficient—nearly 100% of the energy produces light rather than heat, unlike human-made light bulbs that waste most energy as heat. Scientists are studying this efficient light production for potential applications in medicine, where bioluminescent markers help researchers track cells and diagnose diseases.

1. More than 90% of deep-sea creatures produce light because

A. it's beautiful

B. they enjoy it

C. it wastes energy

D. the environment is completely dark

E. they're all related

2. Counterillumination helps fish

A. become invisible to predators looking up

B. attract prey

C. find mates

D. scare predators

E. navigate

3. The anglerfish uses bioluminescence to

A. hide

B. attract prey with a glowing lure

C. escape

D. communicate

E. sleep

4. The "burglar alarm" effect refers to

A. hiding

B. fleeing

C. attacking

D. sleeping

E. attracting larger predators to harass an attacker

5. Bioluminescent reactions are efficient because they

A. use little oxygen

B. happen slowly

C. produce mainly light rather than heat

D. require no enzymes

E. happen above water

Passage 2

The email subject line read: "We need to talk about the fundraiser."

My stomach dropped. As student council treasurer, the spring fundraiser was my responsibility. We'd sold cookie dough for three weeks, and everyone had worked so hard. I clicked the email from Principal Martinez.

"Dear Maya, I'm concerned about the fundraiser proceeds. According to your report, we should have $2,847, but the bank deposit slip shows only $2,347. Please see me first thing Monday morning."

Five hundred dollars. Missing. And everyone would think I took it.

I went through my folders frantically. Every order form. Every payment. Every calculation. The numbers matched—we should have $2,847.

Then I found it. A crumpled envelope I'd stuffed in my backpack's outer pocket weeks ago. Five hundred-dollar bills and a note: "Sorry I forgot to give this to you earlier! – Mr. Kim."

Mr. Kim, the art teacher who'd ordered cookie dough for his entire department. I'd been so busy that day I'd shoved it in my pocket and completely forgotten.

Monday morning, I walked into Principal Martinez's office with the envelope, my spreadsheets, and burning cheeks.

"I found it," I said. "Mr. Kim gave me cash three weeks ago, and I forgot to deposit it. I'm so sorry. I should have been more organized."

Principal Martinez nodded slowly. "I appreciate your honesty and that you figured it out. But Maya, when you're handling other people's money, you can't afford to forget. The whole school trusted you."

She was right. People had worked for this fundraiser. They deserved better than "I forgot."

"I understand," I said. "I'd like to create a better system for next time. Maybe requiring all payments to go directly to the office, or having two people handle money together."

Principal Martinez smiled. "Now that's the treasurer I hired. Mistakes happen. Leaders figure out how to prevent them from happening again."

I still felt terrible. But I'd learned something more valuable than I realized: trust isn't just about being honest. It's about being reliable. And when you mess up, you fix the system, not just the mistake.

6. Maya is the student council

A. president

B. secretary

C. vice president

D. treasurer

E. member

7. The discrepancy between expected and deposited money was

A. $500

B. $2,847

C. $2,347

D. $5,000

E. $1,000

8. The missing money came from

A. stolen funds

B. Mr. Kim's cash payment she forgot to deposit

C. a bank error

D. miscalculation

E. another student

9. Principal Martinez's response emphasized

A. punishment

B. anger

C. indifference

D. humor

E. the importance of reliability with others' money

10. By the end, Maya learns that being trustworthy requires

A. perfection

B. good intentions

C. reliability and systematic prevention of mistakes

D. apologies only

E. avoiding responsibility

Passage 3

The Silk Road was not a single road, but a network of trade routes connecting East Asia to the Mediterranean Sea, spanning over 4,000 miles. For more than 1,500 years, from roughly 130 BCE to 1453 CE, these routes facilitated not just the exchange of goods but the spread of ideas, religions, technologies, and diseases that shaped civilizations.

Despite its name, silk was just one of many goods traded. From China came silk, paper, gunpowder, and porcelain. From the West came gold, silver, glass, and wool. Spices from India, precious stones from

Central Asia, and horses from the steppes all traveled these routes. Merchants rarely traveled the entire distance; instead, goods passed through many hands, with each trader adding markup, making exotic goods extremely expensive at their final destinations.

The Silk Road's impact extended far beyond commerce. Buddhism spread from India to China along these routes. Islamic scholars carried mathematical and astronomical knowledge westward. Technologies like paper-making and printing revolutionized societies as they traveled from China. Even devastating diseases like the bubonic plague followed trade routes, causing pandemics that altered history.

Cities along the Silk Road became wealthy cultural centers where East met West. Samarkand, Bukhara, and Kashgar developed as cosmopolitan hubs where merchants, scholars, and travelers from different cultures exchanged ideas along with goods. These cities built magnificent architecture, supported artists and scientists, and developed sophisticated banking systems to facilitate trade.

The Silk Road's decline came with the rise of maritime trade routes and the Mongol Empire's collapse. The Ottoman Empire's control of traditional land routes motivated European nations to seek sea routes to Asia, ultimately leading to the Age of Exploration. While the physical Silk Road declined, its legacy endures—it demonstrated how interconnected human civilizations have always been, with trade serving as a bridge between cultures rather than just an economic transaction.

11. The Silk Road operated for approximately

A. 500 years

B. 1,000 years

C. 100 years

D. 1,500 years

E. 2,000 years

12. Merchants typically

A. didn't travel the entire distance

B. made the whole journey alone

C. carried only silk

D. traveled by sea

E. avoided cities

13. Buddhism spread from India to China via

A. missionaries only

B. the Silk Road

C. war

D. ocean routes

E. government decree

14. The Silk Road declined partly due to

A. lack of goods

B. better quality silk

C. peace

D. more traders

E. rise of maritime trade routes

15. According to the passage, trade along the Silk Road

A. was only about economics

B. had no cultural impact

C. served as a bridge between cultures

D. was always peaceful

E. involved only two countries

Passage 4

I wasn't supposed to be in the robotics club. I was a "theater kid"—auditions, rehearsals, performances. That was my world. Robots were for the math kids, the computer kids. Not me.

But then budget cuts eliminated spring drama. No musical. No play. Nothing.

"You should try something new," Mom suggested. "What about robotics? The team needs more members."

"I don't know anything about robots," I protested.

"So? You didn't know anything about theater until you tried."

The robotics lab smelled like solder and pizza. Five kids hunched over a metal contraption that looked like a mechanical spider had a fight with a shopping cart.

"Are you joining?" a girl with blue-streaked hair asked. Her name tag said "Keisha—Team Captain."

"Maybe. I don't really know engineering or programming or—"

"Can you organize things? We're disastrous at project management." She gestured at the chaos surrounding us—tools everywhere, wires tangled, papers scattered.

"I mean, yeah. In theater we have detailed production schedules, prop lists, cue sheets—"

"Perfect. You're hired. We need someone who thinks about the big picture while we're focused on individual components."

It was strange at first. Instead of memorizing lines, I was creating flowcharts. Instead of blocking scenes, I was coordinating build schedules. But I realized something: theater had taught me project management, team coordination, and how to problem-solve under pressure. Those skills worked everywhere.

Three months later, at the regional competition, our robot performed flawlessly. When we placed second, Keisha hugged me. "Your organization made the difference. We've never been this prepared."

That evening, I thought about how I'd almost said no because I thought I "wasn't a robot kid." I'd learned that skills aren't locked into categories. Creative skills help with technical problems. Technical precision helps with creative work.

The best part? Theater came back next year. And I did robotics too. Because I wasn't choosing between two different worlds. I was just choosing to be in both.

16. The narrator initially identified as a

A. math kid

B. computer kid

C. sports kid

D. theater kid

E. science kid

17. The spring drama was eliminated due to

A. budget cuts

B. lack of interest

C. teacher retirement

D. building renovations

E. bad reviews

18. Keisha wanted the narrator to help with

A. programming

B. project management and organization

C. building robots

D. fundraising

E. recruiting

19. The narrator realized that theater had taught them

A. nothing useful

B. only acting

C. only memorization

D. dance skills

E. project management and problem-solving skills

20. At the competition, the team placed

A. first

B. last

C. second

D. third

E. did not place

Passage 5

Coral reefs, often called "rainforests of the sea," are among Earth's most biodiverse and threatened ecosystems. These underwater structures, built by tiny animals called coral polyps, cover less than 1% of the ocean floor yet support approximately 25% of all marine species. However, climate change, pollution, and overfishing are devastating reef systems worldwide.

Coral reefs form through a remarkable partnership. Coral polyps—small animals related to jellyfish—secrete calcium carbonate, creating hard skeletons that build up over centuries into massive reef structures. Living within the coral tissue are zooxanthellae, microscopic algae that photosynthesize and provide the coral with up to 90% of its energy. This symbiotic relationship gives healthy coral its vibrant colors.

But this partnership is fragile. When ocean temperatures rise even slightly, corals expel their zooxanthellae in a stress response called coral bleaching. Without the algae, corals appear white (hence "bleaching") and lose their primary food source. If temperatures don't return to normal quickly, the coral dies. Mass bleaching events have become increasingly frequent; the Great Barrier Reef has experienced multiple severe bleaching events since 2016.

Ocean acidification compounds the problem. As oceans absorb excess atmospheric CO_2, water chemistry changes, making it harder for corals to build their calcium carbonate skeletons. It's like trying to construct a building while the bricks dissolve—new reef growth slows while existing structures weaken.

Human activities add additional stress. Agricultural runoff introduces nutrients that trigger algae overgrowth, smothering corals. Overfishing removes species that control algae populations, allowing

algae to outcompete coral. Physical damage from anchors, careless divers, and destructive fishing practices directly destroys reef structures.

Conservation efforts offer hope. Marine protected areas limit fishing and development. Coral restoration projects grow coral fragments in nurseries and transplant them to damaged reefs. Scientists are breeding heat-resistant coral varieties. These initiatives show promise, but the fundamental challenge remains: coral reefs need stable ocean conditions. Without addressing climate change, even our best conservation efforts may only slow, not prevent, reef decline.

21. Coral reefs cover what percentage of the ocean floor?

A. 25%

B. 10%

C. 50%

D. less than 1%

E. 5%

22. Zooxanthellae provide corals with approximately

A. 90% of their energy

B. 50% of their energy

C. 25% of their energy

D. 10% of their energy

E. no energy

23. Coral bleaching occurs when corals

A. grow too fast

B. expel their zooxanthellae due to stress

C. eat too much

D. reproduce

E. age naturally

24. Ocean acidification makes it harder for corals to

A. photosynthesize

B. reproduce

C. move

D. find food

E. build calcium carbonate skeletons

25. According to the passage, the fundamental challenge for coral conservation is

A. lack of funding

B. too few scientists

C. need for stable ocean conditions and addressing climate change

D. not enough coral species

E. insufficient technology

Passage 6

The hardest conversation I ever had lasted exactly four minutes and twenty-three seconds. I know because I watched the clock the entire time, desperate for it to end.

"Rachel," Coach Stevens said, "I need to talk to you about the showcase."

The showcase. The year-end gymnastics performance where our team demonstrated our best skills for parents, scouts, potential sponsors. I'd been training for the vault sequence all year—a complex series ending with a full-twisting layout. I could land it in my sleep.

"I'm ready," I said confidently. "I've been hitting it consistently."

Coach's face stayed neutral. "I know. You're incredibly talented. But I'm giving the vault showcase spot to Emma."

Emma. Who'd been on the team half as long as me. Who'd only recently mastered the skill I'd been perfecting for twelve months.

"Why?" My voice came out sharper than I intended.

"Because Emma needs this more than you do. She's applying to training academies, and this performance matters for her applications. You're already secured for next year's elite training program. This is her shot."

Fair. Objectively, completely fair. And absolutely crushing.

"So I just... don't perform vault?"

"You'll do floor routine instead. You're excellent at floor."

"But vault is my strongest event."

Coach Stevens leaned forward. "Rachel, this is the hard part of being the best. Sometimes that means stepping back so others can step forward. That's what leadership looks like."

I wanted to argue. To say it wasn't fair that being good meant losing opportunities. To point out I'd earned this spot.

But I thought about Emma—nervous Emma who worked twice as hard because things didn't come as naturally to her. Emma who needed this showcase like I'd needed opportunities coaches gave me when I was starting.

"Okay," I said, though my throat felt tight. "I'll do floor."

Showcase day, I watched Emma nail the vault. Her smile afterward—pure joy mixed with relief—made something inside me shift. I'd given up something I wanted. But I'd given Emma something she needed.

Later, Emma found me. "Thank you," she whispered. "I know Coach chose me over you."

"You earned it," I said. And I meant it.

Being the best isn't about always being in the spotlight. Sometimes it's about knowing when to share the light.

26. Rachel trained all year for

A. floor routine

B. bars

C. beam

D. a vault sequence

E. dance

27. Coach Stevens gave the vault showcase spot to

A. Emma

B. Rachel

C. both of them

D. neither

E. a new student

28. Emma needed the showcase performance for

A. fun

B. training academy applications

C. confidence

D. practice

E. her parents

29. Coach Stevens explained that being the best sometimes means

A. never sharing

B. always performing

C. ignoring others

D. avoiding responsibility

E. stepping back so others can step forward

30. By the end, Rachel realizes that leadership involves

A. always winning

B. refusing to share

C. knowing when to share opportunities

D. competing constantly

E. avoiding difficult choices

Passage 7

Vaccines represent one of medicine's greatest achievements, preventing millions of deaths annually from diseases that once devastated populations. Understanding how vaccines work reveals both the sophistication of the human immune system and the ingenuity of medical science.

Your immune system has two main response types: innate immunity and adaptive immunity. Innate immunity provides immediate, general defense against pathogens—like a security guard who stops anyone suspicious. Adaptive immunity, however, creates specific responses to particular threats and, crucially, remembers those threats for future encounters. This immunological memory is what vaccines exploit.

When a pathogen enters your body, adaptive immunity takes time to mount an effective response—often days or weeks. During this delay, you get sick. But once your immune system defeats the pathogen, specialized cells called memory B-cells and memory T-cells remain in your body, sometimes for decades. If that same pathogen invades again, these memory cells recognize it immediately and respond within hours instead of weeks, often preventing illness entirely.

Vaccines introduce a harmless version of a pathogen—or parts of it—training your immune system without making you sick. Some vaccines use weakened live viruses that can replicate but don't cause disease. Others use inactivated viruses that cannot replicate. Newer vaccines might use just a viral protein

or even genetic instructions for cells to produce that protein temporarily. Each approach triggers immune memory without the dangers of actual infection.

Vaccination's effectiveness extends beyond individual protection through herd immunity. When enough people in a population are immune, disease transmission slows dramatically, protecting even those who cannot be vaccinated—infants too young, people with compromised immune systems, or those with severe allergies to vaccine components. This collective protection is why vaccination is considered a social responsibility as well as personal health decision.

Vaccine development requires rigorous testing. Clinical trials involve thousands of participants across multiple phases, carefully monitoring safety and effectiveness before regulatory approval. Post-approval surveillance continues monitoring for rare side effects. While no medical intervention is risk-free, vaccines undergo more scrutiny than most medications, and serious complications are extremely rare compared to the diseases they prevent.

31. Adaptive immunity is different from innate immunity because it

A. works immediately

B. is less effective

C. is always active

D. creates specific responses and remembers threats

E. doesn't use cells

32. Memory B-cells and T-cells

A. remain in the body and quickly respond to previously encountered pathogens

B. disappear immediately

C. only fight new infections

D. work slowly

E. don't remember pathogens

33. Vaccines work by

A. curing diseases

B. introducing harmless versions of pathogens to train the immune system

C. killing all bacteria

D. replacing the immune system

E. preventing all illnesses

34. Herd immunity protects

A. only vaccinated people

B. no one

C. animals only

D. only healthy adults

E. even those who cannot be vaccinated

35. Vaccine clinical trials involve

A. no testing

B. only one person

C. thousands of participants across multiple phases

D. just animals

E. no regulatory oversight

Passage 8

The letter was addressed to "The Student Who Sits Alone at Lunch."

I found it in my locker Wednesday morning, tucked between my math textbook and the mirror I never looked in. White envelope, neat handwriting, no return address.

My first thought was: It's a prank. Someone making fun of the fact that yeah, I eat lunch alone. I've eaten lunch alone since we moved here in September. Hard to make friends when you're the new kid three weeks into the school year.

I almost threw it away. But curiosity won.

"Dear Student Who Sits Alone," it began. "I've noticed you at lunch these past few months. I want you to know you're not invisible. I see you reading during lunch, and I've seen the book covers—we have the same taste. I eat lunch alone too, by choice mostly, because I'm overwhelmed by the cafeteria noise. But I wanted you to know you're not the only one who feels like an outsider sometimes. If you ever want company, there's room at my table. – Another Solo Luncher"

I read it three times. Someone had noticed me. Not to mock me, but to say they understood.

Thursday, I looked around the cafeteria more carefully. There, in the corner by the windows—a girl with headphones, reading. Every day I'd been so focused on my own book, my own table, my own isolation, I hadn't noticed her.

Friday, I wrote back: "Dear Another Solo Luncher, Thank you for seeing me. Would Thursday work for sitting together? I promise I won't make it weird. – The Student Who Sits Alone (But Maybe Not Forever)"

I left it in the only locker near the corner where she sat—a guess, but it turned out right.

Monday morning, I found a response: "Thursday perfect. Fair warning: I'm awkward at small talk but excellent at discussing books. Also, my name is Zara."

Thursday, we sat together. It was awkward at first—we were both out of practice at lunch conversation. But then we talked about books, and awkward faded into easy.

The next week, a boy named Marcus asked if he could sit with us. Then Sarah. Then two others. By October, we had a table of "solo lunchers" who'd all felt invisible until someone decided to see them.

I still have that first letter. It reminds me that sometimes the loneliest people just need one person to notice. And that maybe being alone and being lonely aren't quite the same thing.

36. The narrator had been at the school since

A. last year

B. elementary

C. the beginning of the year

D. September, three weeks into the school year

E. kindergarten

37. The letter's author was

A. Zara, who also ate lunch alone

B. a teacher

C. the narrator's parent

D. a prankster

E. the principal

38. The letter writer suggested meeting on

A. Monday

B. Thursday

C. Friday

D. Wednesday

E. Tuesday

39. When they first sat together, the conversation was

A. perfect immediately

B. angry

C. silent

D. about sports

E. awkward at first but became easier

40. By October, their lunch table had become

A. empty

B. just the two of them

C. a group of former "solo lunchers"

D. very loud

E. disbanded

Section 3: Verbal

Time – 30 Minutes

60 Questions

Directions: This section consists of two different types of questions. There are directions and a sample question for each type.

SYNONYMS (Questions 1-30)

Directions: Each question consists of one word followed by five words or phrases. Select the word or phrase whose meaning is closest to the word in capital letters.

1. RADIANT:

A. dull

B. bright

C. dark

D. dim

E. shadowy

2. HOSTILE:

A. friendly

B. welcoming

C. kind

D. unfriendly

E. warm

3. DILIGENT:

A. hardworking

B. lazy

C. careless

D. negligent

E. idle

4. ORNATE:

A. plain

B. simple

C. elaborate

D. basic

E. bare

5. TURBULENT:

A. calm

B. peaceful

C. quiet

D. still

E. chaotic

6. ASTUTE:

A. foolish

B. shrewd

C. ignorant

D. dull

E. stupid

7. CORDIAL:

A. cold

B. hostile

C. unfriendly

D. warm

E. icy

8. BARREN:

A. empty

B. fertile

C. productive

D. lush

E. abundant

9. DORMANT:

A. active

B. energetic

C. inactive

D. lively

E. busy

10. RESILIENT:

A. weak

B. fragile

C. brittle

D. delicate

E. flexible

11. NOXIOUS:

A. healthy

B. harmful

C. beneficial

D. helpful

E. good

12. BREVITY:

A. length

B. prolixity

C. wordiness

D. conciseness

E. verbosity

13. SULLEN:

A. gloomy

B. cheerful

C. happy

D. bright

E. joyful

14. PRODIGIOUS:

A. tiny

B. small

C. enormous

D. little

E. minute

15. ALOOF:

A. friendly

B. sociable

C. warm

D. approachable

E. distant

16. LUCID:

A. confused

B. clear

C. muddled

D. obscure

E. vague

17. AUSTERE:

A. ornate

B. fancy

C. decorated

D. severe

E. elaborate

18. FICKLE:

A. changeable

B. constant

C. steady

D. reliable

E. stable

19. ARDENT:

A. cold

B. indifferent

C. passionate

D. apathetic

E. uncaring

20. SCRUPULOUS:

A. careless

B. sloppy

C. negligent

D. reckless

E. careful

21. PRISTINE:

A. dirty

B. pure

C. soiled

D. stained

E. polluted

22. VOLATILE:

A. stable

B. steady

C. constant

D. unpredictable

E. reliable

23. CANDID:

A. frank

B. dishonest

C. deceptive

D. secretive

E. evasive

24. METICULOUS:

A. careless

B. sloppy

C. careful

D. negligent

E. reckless

25. OMINOUS:

A. promising

B. hopeful

C. encouraging

D. positive

E. threatening

26. LUCRATIVE:

A. unprofitable

B. profitable

C. losing

D. costly

E. expensive

27. SOMBER:

A. cheerful

B. bright

C. happy

D. serious

E. joyful

28. ZENITH:

A. peak

B. bottom

C. nadir

D. base

E. low

29. AMBIGUOUS:

A. clear

B. obvious

C. unclear

D. definite

E. certain

30. TENACIOUS:

A. weak

B. yielding

C. soft

D. flexible

E. persistent

ANALOGIES (Questions 31-60)

Directions: The following questions ask you to find relationships between words. For each question, select the answer choice that best completes the meaning of the sentence.

31. Acorn is to oak as

A. leaf is to tree

B. branch is to trunk

C. root is to soil

D. seed is to plant

E. flower is to garden

32. Thermometer is to temperature as

A. ruler is to area

B. barometer is to pressure

C. clock is to alarm

D. compass is to map

E. scale is to height

33. Frigid is to cold as

A. warm is to hot

B. cool is to cold

C. tepid is to warm

D. mild is to cool

E. scorching is to hot

34. Shepherd is to sheep as

A. cowboy is to cattle

B. farmer is to crops

C. teacher is to students

D. doctor is to patients

E. pilot is to passengers

35. Optimist is to pessimist as

A. happy is to sad

B. cheerful is to gloomy

C. hopeful is to hopeless

D. positive is to negative

E. bright is to dark

36. Palette is to painter as

A. stage is to actor

B. canvas is to artist

C. instrument is to musician

D. keyboard is to writer

E. camera is to photographer

37. Roots is to tree as

A. stem is to flower

B. foundation is to building

C. base is to statue

D. trunk is to elephant

E. soil is to garden

38. Mirage is to desert as

A. rain is to forest

B. snow is to mountain

C. wave is to ocean

D. wind is to prairie

E. aurora is to polar region

39. Evaporate is to condense as

A. melt is to freeze

B. boil is to simmer

C. heat is to warm

D. cool is to chill

E. warm is to hot

40. Choreographer is to dance as

A. actor is to play

B. musician is to concert

C. director is to film

D. painter is to gallery

E. writer is to library

41. Famine is to starvation as

A. wealth is to poverty

B. health is to sickness

C. abundance is to plenty

D. drought is to dehydration

E. rain is to flood

42. Scalpel is to surgeon as

A. hammer is to carpenter

B. wrench is to mechanic

C. paintbrush is to artist

D. pen is to author

E. microscope is to scientist

43. Metamorphosis is to butterfly as

A. hibernation is to bear

B. migration is to bird

C. molting is to snake

D. gestation is to mammal

E. germination is to plant

44. Eclipse is to sun as

A. occultation is to star

B. phase is to moon

C. tide is to ocean

D. season is to year

E. day is to night

45. Ephemeral is to permanent as

A. temporary is to lasting

B. brief is to short

C. fleeting is to enduring

D. momentary is to instant

E. quick is to fast

46. Nocturnal is to owl as

A. aquatic is to land

B. aerial is to ground

C. marine is to ocean

D. diurnal is to eagle

E. subterranean is to surface

47. Summit is to valley as

A. hill is to mountain

B. zenith is to nadir

C. top is to side

D. peak is to slope

E. height is to depth

48. Magnify is to microscope as

A. measure is to ruler

B. weigh is to scale

C. time is to clock

D. heat is to thermometer

E. amplify is to microphone

49. Transparent is to window as

A. porous is to sponge

B. solid is to rock

C. liquid is to water

D. rigid is to steel

E. flexible is to rubber

50. Caterpillar is to chrysalis as

A. egg is to nest

B. seed is to soil

C. tadpole is to frog

D. larva is to pupa

E. infant is to adult

51. Archipelago is to ocean as

A. forest is to trees

B. desert is to sand

C. mountain range is to land

D. constellation is to sky

E. river is to water

52. Carnivore is to herbivore as

A. predator is to scavenger

B. lion is to zebra

C. hunter is to gatherer

D. meat is to plants

E. teeth is to digestive system

53. Censure is to criticize as

A. praise is to condemn

B. approve is to reject

C. compliment is to insult

D. admire is to dislike

E. commend is to laud

54. Thermometer is to fever as

A. speedometer is to speeding

B. odometer is to distance

C. barometer is to storm

D. altimeter is to height

E. compass is to direction

55. Exile is to country as

A. welcome is to guest

B. invite is to party

C. banish is to community

D. accept is to member

E. include is to group

56. Prism is to light as

A. lens is to image

B. mirror is to reflection

C. filter is to water

D. tuning fork is to sound

E. magnet is to metal

57. Procrastinate is to delay as

A. hurry is to rush

B. hasten is to expedite

C. wait is to pause

D. stop is to halt

E. begin is to start

58. Photosynthesis is to plants as

A. digestion is to stomach

B. respiration is to lungs

C. circulation is to heart

D. hibernation is to bears

E. respiration is to animals

59. Archipelago is to island as

A. fleet is to ship

B. forest is to tree

C. desert is to oasis

D. mountain is to peak

E. ocean is to wave

60. Venom is to snake as

A. sting is to bee

B. bite is to dog

C. quill is to porcupine

D. spray is to skunk

E. horn is to rhinoceros

Section 4: Quantitative

Time – 30 Minutes

25 Questions

Directions: Following each problem in this section, there are five suggested answers. Work each problem in your head or in the blank space provided. Then select the best answer.

1. What is 588 ÷ 42?

A. 13

B. 15

C. 14

D. 16

E. 12

2. If p + 93 = 217, then p =

A. 310

B. 93

C. 217

D. 134

E. 124

3. A sequence follows the rule: add 25 to the previous number. If the first number is 37, what is the 8th number?

A. 162

B. 212

C. 187

D. 62

E. 237

4. What is the area of a rectangle with length 45 and width 29?

A. 74

B. 148

C. 1300

D. 1305

E. 1350

5. If $42x = 546$, then $x =$

A. 13

B. 12

C. 504

D. 588

E. 42

6. A library has 264 books. If 5/8 of them are fiction, how many fiction books are there?

A. 88

B. 132

C. 165

D. 198

E. 264

7. What is $187 - 25 \times 7 + 16$?

A. 1154

B. 1138

C. 12

D. 1122

E. 28

8. A spinner has 40 equal sections numbered 1 through 40. What is the probability of landing on a multiple of 8?

A. 8/40

B. 1/8

C. 5/40

D. 6/40

E. 1/5

9. Which of the following is equivalent to 0.65?

A. 65/10

B. 6/5

C. 1/65

D. 13/20

E. 65/1000

10. A circle has a diameter of 104. What is its radius?

A. 52

B. 208

C. 104

D. 26

E. 156

11. If $31y + 67 = 284$, then $y =$

A. 351

B. 31

C. 7

D. 67

E. 8

12. A television originally costs $1440. It's now on sale for 40% off. What is the sale price?

A. $1400

B. $576

C. $1080

D. $720

E. $864

13. What is $45^2 - 42^2$?

A. 3

B. 261

C. 1764

D. 2025

E. 9

14. If $w > 265$ and $w < 270$, which could NOT be the value of w?

A. 266

B. 267.5

C. 268

D. 270

E. 269

15. A recipe requires 32 ounces of milk to make 48 muffins. How many ounces are needed for 78 muffins?

A. 52

B. 48

C. 64

D. 60

E. 40

16. What is 39/51 − 31/51?

A. 70/51

B. 31/51

C. 8/51

D. 8/102

E. 39/102

17. Round 33,926 to the nearest hundred.

A. 34,000

B. 33,930

C. 33,950

D. 33,920

E. 33,900

18. What is the least common multiple (LCM) of 40 and 60?

A. 20

B. 120

C. 2400

D. 100

E. 80

19. If the pattern continues: 26, 78, 234, 702, ___, what is the next number?

A. 1404

B. 1638

C. 1170

D. 2106

E. 2808

20. A triangle has a base of 52 and a height of 43. What is its area?

A. 1118

B. 95

C. 2236

D. 190

E. 896

21. What is 96% of 400?

A. 96

B. 380

C. 384

D. 360

E. 400

22. If $43 \times n = 559$, then n =

A. 12

B. 14

C. 43

D. 516

E. 13

23. A number is multiplied by 21, then 35 is subtracted. The result is 175. What is the number?

A. 9

B. 10

C. 8

D. 11

E. 12

24. The ratio of tennis balls to golf balls in a storage room is 8:3. If there are 96 tennis balls, how many golf balls are there?

A. 32

B. 48

C. 40

D. 36

E. 24

25. What is $90 + 18^2 - 35$?

A. 379

B. 324

C. 73

D. 90

E. 289

ANSWERS AND EXPLANATIONS

Quantitative

1. A: 14 - Divide 560 by 40: 560 ÷ 40 = 14. This is a division fact from the 40 times table. Check: 40 × 14 = 560 ✓ Knowing multiplication facts helps solve division problems quickly.

2. C: 221 - Solve k − 87 = 134 by adding 87 to both sides: k = 134 + 87 = 221. Check: 221 − 87 = 134 ✓ To undo subtraction, use addition.

3. E: −11 - The sequence subtracts 17 each time. 1st: 125. 2nd: 125 − 17 = 108. 3rd: 108 − 17 = 91. 4th: 91 − 17 = 74. 5th: 74 − 17 = 57. 6th: 57 − 17 = 40. 7th: 40 − 17 = 23. 8th: 23 − 17 = 6. 9th: 6 − 17 = −11. This is an arithmetic sequence with common difference −17 that produces a negative number.

4. B: 1161 - Area of a rectangle = length × width = 43 × 27 = 1161 square units. Don't confuse with perimeter, which would be 2(43 + 27) = 140. Area measures the space inside.

5. D: 13 - Solve 38x = 494 by dividing both sides by 38: x = 494 ÷ 38 = 13. Check: 38 × 13 = 494 ✓ Division is the inverse of multiplication.

6. A: 140 - To find 7/12 of 240 students, multiply: (7/12) × 240. Divide 240 by 12 first: 240 ÷ 12 = 20. Then multiply by 7: 20 × 7 = 140 students play sports.

7. C: 50 - Follow order of operations (PEMDAS). Multiply first: 23 × 6 = 138. Then work left to right: 173 − 138 = 35, then 35 + 15 = 50. Multiplication must be done before addition and subtraction.

8. E: 1/4 - Total candies: 9 yellow + 11 orange + 16 purple = 36 candies. Probability of yellow = yellow candies/total candies = 9/36. Simplify by dividing both by 9: 9/36 = 1/4. Count favorable outcomes over total possible outcomes.

9. B: 11/20 - Convert 0.55 to a fraction: 0.55 = 55/100. Simplify by dividing both numerator and denominator by 5: 55 ÷ 5 = 11 and 100 ÷ 5 = 20, giving 11/20. Check: 11 ÷ 20 = 0.55 ✓

10. D: 49 - The radius of a circle is half the diameter. If diameter = 98, then radius = 98 ÷ 2 = 49. Remember: diameter goes all the way across, radius goes from center to edge.

11. A: 7 - Solve 29y + 59 = 262 in two steps. Subtract 59 from both sides: 29y = 203. Divide both sides by 29: y = 7. Check: 29(7) + 59 = 203 + 59 = 262 ✓

12. C: $780 - Calculate 35% off of $1200. Method 1: Find discount: 0.35 × $1200 = $420, then subtract: $1200 − $420 = $780. Method 2: If 35% off, you pay 65%: 0.65 × $1200 = $780.

13. E: 249 - Calculate each exponent first, then subtract. $43^2 = 43 \times 43 = 1849$. Then $40^2 = 40 \times 40 = 1600$. Finally subtract: 1849 − 1600 = 249. Exponents must be calculated before subtraction.

14. B: 255 - The compound inequality $t > 250$ and $t < 255$ means t must be greater than 250 AND less than 255. This is a "could NOT" question. 255 does NOT satisfy $t < 255$ (255 is not less than 255; it's equal). All other choices fall between 250 and 255.

15. D: 48 - Set up a proportion: 30 cups/45 servings = x cups/72 servings. Cross-multiply: $30 \times 72 = 45 \times x$, so $2160 = 45x$. Divide: $x = 48$ cups. Or find cups per serving: $30/45 = 2/3$ cup per serving, so $72 \times (2/3) = 48$ cups.

16. A: 8/49 - When subtracting fractions with the same denominator, keep the denominator and subtract numerators: $37/49 - 29/49 = (37 - 29)/49 = 8/49$. The denominator stays 49; only subtract the numerators.

17. C: 31,800 - When rounding to the nearest hundred, look at the tens digit. In 31,847, the tens digit is 4. Since $4 < 5$, round down: keep the hundreds digit as 8, making 31,800.

18. E: 108 - The LCM is the smallest number both numbers divide into evenly. List multiples: 36: 36, 72, 108, 144... and 54: 54, 108, 162... The first common multiple is 108. Verify: $108 \div 36 = 3$ ✓ and $108 \div 54 = 2$ ✓

19. B: 1944 - Examine the pattern: 24 to 72 is ×3, 72 to 216 is ×3, 216 to 648 is ×3. Each number triples. This is a geometric sequence with ratio 3. Next number: $648 \times 3 = 1944$.

20. D: 1025 - Area of a triangle = (base × height) ÷ 2 = $(50 \times 41) \div 2 = 2050 \div 2 = 1025$ square units. You can also use formula $A = \frac{1}{2}bh$. A triangle's area is always half that of a rectangle with the same base and height.

21. A: 345 - To find 92% of 375, multiply: $0.92 \times 375 = 345$. Mental math: 100% of 375 is 375, so 92% is 375 − (8% of 375) = 375 − 30 = 345.

22. C: 13 - Solve $41 \times j = 533$ by dividing both sides by 41: $j = 533 \div 41 = 13$. Check: $41 \times 13 = 533$ ✓ Think "41 times what equals 533?"

23. E: 135 - Work backwards from the result. If the result is 30 after adding 21, then before adding the value was $30 - 21 = 9$. If dividing by 15 gave 9, the original number was $9 \times 15 = 135$. Check: $135 \div 15 = 9$, then $9 + 21 = 30$ ✓

24. B: 75 - The ratio 6:5 means for every 6 soccer balls, there are 5 footballs. If there are 90 soccer balls, find how many groups of 6: $90 \div 6 = 15$ groups. Each group has 5 footballs, so total footballs = $15 \times 5 = 75$. Or proportion: $6/5 = 90/x$, cross multiply: $6x = 450$, so $x = 75$.

25. D: 342 - Follow order of operations. Calculate the exponent first: $17^2 = 289$. Then work left to right: $85 + 289 = 374$, then $374 - 32 = 342$. Exponents are calculated before addition and subtraction.

Reading

1. D: the environment is completely dark - The passage explains: "In the pitch-black depths where sunlight never penetrates, more than 90% of creatures produce their own light." The complete darkness is the environmental condition that makes bioluminescence so prevalent.

2. A: become invisible to predators looking up - The passage describes: "Many fish have light-producing organs on their undersides that match the faint light filtering down from above. When predators look up, the fish's glowing belly blends with the surface light, making them nearly invisible." This camouflage technique protects from predators below.

3. B: attract prey with a glowing lure - The passage states: "The anglerfish dangles a bioluminescent lure to attract prey close enough to strike." This offensive use of light is clearly explained.

4. E: attracting larger predators to harass an attacker - The passage explains: "Certain jellyfish produce startling light flashes when disturbed—a 'burglar alarm' effect that attracts larger predators to harass their attacker." The alarm brings help from bigger predators.

5. C: produce mainly light rather than heat - The passage notes: "This reaction is remarkably efficient—nearly 100% of the energy produces light rather than heat, unlike human-made light bulbs that waste most energy as heat." The efficiency comes from minimal heat production.

6. D: treasurer - The opening establishes: "As student council treasurer, the spring fundraiser was my responsibility." Maya's role is clearly stated.

7. A: $500 - The email states: "According to your report, we should have $2,847, but the bank deposit slip shows only $2,347." The difference is $500.

8. B: Mr. Kim's cash payment she forgot to deposit - Maya discovers: "A crumpled envelope I'd stuffed in my backpack's outer pocket weeks ago. Five hundred-dollar bills and a note: 'Sorry I forgot to give this to you earlier! – Mr. Kim.'" She had forgotten to deposit his payment.

9. E: the importance of reliability with others' money - Principal Martinez says: "when you're handling other people's money, you can't afford to forget. The whole school trusted you." The emphasis is on reliability.

10. C: reliability and systematic prevention of mistakes - Maya learns: "trust isn't just about being honest. It's about being reliable. And when you mess up, you fix the system, not just the mistake." Both reliability and system improvement are key lessons.

11. D: 1,500 years - The opening sentence states: "For more than 1,500 years, from roughly 130 BCE to 1453 CE, these routes facilitated...exchange." The duration is explicitly given.

12. A: didn't travel the entire distance - The passage explains: "Merchants rarely traveled the entire distance; instead, goods passed through many hands, with each trader adding markup." Most merchants covered only portions of the route.

13. B: the Silk Road - The passage states: "Buddhism spread from India to China along these routes." The Silk Road was the vehicle for Buddhism's spread.

14. E: rise of maritime trade routes - The passage notes: "The Silk Road's decline came with the rise of maritime trade routes and the Mongol Empire's collapse." Maritime trade was a key factor.

15. C: served as a bridge between cultures - The passage concludes: "it demonstrated how interconnected human civilizations have always been, with trade serving as a bridge between cultures rather than just an economic transaction." Cultural bridging is emphasized.

16. D: theater kid - The opening states: "I wasn't supposed to be in the robotics club. I was a 'theater kid'—auditions, rehearsals, performances. That was my world." The narrator's identity is clear.

17. A: budget cuts - The passage explains: "But then budget cuts eliminated spring drama. No musical. No play. Nothing." Budget cuts were the reason.

18. B: project management and organization - Keisha asks: "'Can you organize things? We're disastrous at project management.'" Organization was what they needed.

19. E: project management and problem-solving skills - The narrator realizes: "theater had taught me project management, team coordination, and how to problem-solve under pressure. Those skills worked everywhere." Multiple transferable skills are identified.

20. C: second - The passage states: "When we placed second, Keisha hugged me." Their placement is clearly stated.

21. D: less than 1% - The passage states: "These underwater structures...cover less than 1% of the ocean floor yet support approximately 25% of all marine species." This contrast is emphasized.

22. A: 90% of their energy - The passage explains: "Living within the coral tissue are zooxanthellae, microscopic algae that photosynthesize and provide the coral with up to 90% of its energy." This high percentage is specified.

23. B: expel their zooxanthellae due to stress - The passage describes: "When ocean temperatures rise even slightly, corals expel their zooxanthellae in a stress response called coral bleaching." The mechanism is explained.

24. E: build calcium carbonate skeletons - The passage notes: "As oceans absorb excess atmospheric CO_2, water chemistry changes, making it harder for corals to build their calcium carbonate skeletons." This specific difficulty is mentioned.

25. C: need for stable ocean conditions and addressing climate change - The passage concludes: "the fundamental challenge remains: coral reefs need stable ocean conditions. Without addressing climate change, even our best conservation efforts may only slow, not prevent, reef decline." Climate change is the fundamental issue.

26. D: a vault sequence - Rachel explains: "I'd been training for the vault sequence all year—a complex series ending with a full-twisting layout." Her focus was vault.

27. A: Emma - Coach Stevens says: "'I'm giving the vault showcase spot to Emma.'" The decision is direct.

28. B: training academy applications - Coach explains: "'She's applying to training academies, and this performance matters for her applications.'" The showcase affects Emma's applications.

29. E: stepping back so others can step forward - Coach Stevens tells Rachel: "'Sometimes that means stepping back so others can step forward. That's what leadership looks like.'" This is explicitly stated as leadership.

30. C: knowing when to share opportunities - Rachel concludes: "Being the best isn't about always being in the spotlight. Sometimes it's about knowing when to share the light." Sharing opportunities is the lesson.

31. D: creates specific responses and remembers threats - The passage explains: "Adaptive immunity, however, creates specific responses to particular threats and, crucially, remembers those threats for future encounters." Both specificity and memory distinguish it.

32. A: remain in the body and quickly respond to previously encountered pathogens - The passage describes: "specialized cells called memory B-cells and memory T-cells remain in your body, sometimes for decades. If that same pathogen invades again, these memory cells recognize it immediately and respond within hours instead of weeks." Their persistence and rapid response are key.

33. B: introducing harmless versions of pathogens to train the immune system - The passage states: "Vaccines introduce a harmless version of a pathogen—or parts of it—training your immune system without making you sick." This is the core mechanism.

34. E: even those who cannot be vaccinated - The passage explains herd immunity: "protecting even those who cannot be vaccinated—infants too young, people with compromised immune systems, or those with severe allergies to vaccine components." Protection extends beyond the vaccinated.

35. C: thousands of participants across multiple phases - The passage notes: "Clinical trials involve thousands of participants across multiple phases, carefully monitoring safety and effectiveness before regulatory approval." The scale and structure are described.

36. D: September, three weeks into the school year - The narrator explains: "Hard to make friends when you're the new kid three weeks into the school year" and "I've eaten lunch alone since we moved here in September." The timing is clear.

37. A: Zara, who also ate lunch alone - The letter is signed "Another Solo Luncher" and later reveals: "Also, my name is Zara." Zara wrote the letter.

38. B: Thursday - The narrator proposes: "'Would Thursday work for sitting together?'" and Zara confirms: "'Thursday perfect.'" Thursday is the agreed day.

39. E: awkward at first but became easier - The passage describes: "It was awkward at first—we were both out of practice at lunch conversation. But then we talked about books, and awkward faded into easy." The progression is clear.

40. C: a group of former "solo lunchers" - The passage concludes: "By October, we had a table of 'solo lunchers' who'd all felt invisible until someone decided to see them." The group formed from individual lonely students.

Verbal

1. B: bright - Radiant and bright both mean shining or glowing with light, luminous. "A radiant smile" and "a bright face" describe the same glowing quality. Both indicate luminosity.

2. D: unfriendly - Hostile and unfriendly both mean showing opposition or dislike, antagonistic. "Hostile behavior" and "unfriendly actions" describe the same antagonistic attitude. Both indicate opposition.

3. A: hardworking - Diligent and hardworking both mean showing care and effort in work, industrious. "A diligent student" and "a hardworking pupil" describe the same dedicated effort. Both indicate perseverance.

4. C: elaborate - Ornate and elaborate both mean highly decorated, intricate. "Ornate architecture" and "elaborate designs" show the same complexity. Both indicate detailed decoration.

5. E: chaotic - Turbulent and chaotic both mean characterized by disorder and instability. "Turbulent times" and "chaotic periods" describe the same disorder. Both indicate instability.

6. B: shrewd - Astute and shrewd both mean having sharp judgment, perceptive. "An astute observer" and "a shrewd analyst" show the same keen insight. Both indicate perceptiveness.

7. D: warm - Cordial and warm both mean friendly and welcoming, affable. "A cordial greeting" and "a warm welcome" convey the same friendliness. Both indicate warmth.

8. A: empty - Barren and empty both mean lacking vegetation or contents, desolate. "Barren land" and "empty desert" describe the same lifeless terrain. Both indicate lack of life.

9. C: inactive - Dormant and inactive both mean temporarily not active or in use, latent. "A dormant volcano" and "inactive machinery" both describe states of rest. Both indicate temporary inactivity.

10. E: flexible - Resilient and flexible both mean able to recover from difficulties or return to original form, adaptable. "Resilient material" and "flexible substance" both bounce back. Both indicate adaptability.

11. B: harmful - Noxious and harmful both mean causing damage or injury, poisonous. "Noxious fumes" and "harmful gases" both pose dangers. Both indicate danger.

12. D: conciseness - Brevity and conciseness both mean using few words, shortness. "Brevity in speech" and "conciseness in writing" both value economy of expression. Both indicate shortness.

13. A: gloomy - Sullen and gloomy both mean bad-tempered and morose, sulky. "A sullen mood" and "gloomy demeanor" describe the same dark disposition. Both indicate moodiness.

14. C: enormous - Prodigious and enormous both mean remarkably great in size or degree, immense. "Prodigious talent" and "enormous skill" describe exceptional magnitude. Both indicate great size.

15. E: distant - Aloof and distant both mean not friendly or forthcoming, reserved. "An aloof manner" and "distant behavior" show the same emotional remoteness. Both indicate reserve.

16. B: clear - Lucid and clear both mean easily understood, transparent. "Lucid explanation" and "clear description" both communicate effectively. Both indicate clarity.

17. D: severe - Austere and severe both mean strict or stern in manner or appearance, harsh. "Austere conditions" and "severe environment" describe the same harshness. Both indicate strictness.

18. A: changeable - Fickle and changeable both mean likely to change frequently, inconstant. "Fickle weather" and "changeable moods" both shift unpredictably. Both indicate instability.

19. C: passionate - Ardent and passionate both mean having intense feelings, enthusiastic. "Ardent supporter" and "passionate advocate" show the same fervor. Both indicate intensity.

20. E: careful - Scrupulous and careful both mean very concerned to avoid doing wrong, meticulous. "Scrupulous attention" and "careful consideration" both show thoroughness. Both indicate conscientiousness.

21. B: pure - Pristine and pure both mean in original condition, unspoiled. "Pristine wilderness" and "pure environment" describe the same untouched state. Both indicate purity.

22. D: unpredictable - Volatile and unpredictable both mean liable to change rapidly and unpredictably, unstable. "Volatile situation" and "unpredictable circumstances" both shift suddenly. Both indicate instability.

23. A: frank - Candid and frank both mean truthful and straightforward, honest. "Candid opinion" and "frank assessment" both express truth directly. Both indicate honesty.

24. C: careful - Meticulous and careful both mean showing great attention to detail, thorough. "Meticulous work" and "careful effort" both demonstrate precision. Both indicate thoroughness.

25. E: threatening - Ominous and threatening both mean giving the impression something bad will happen, menacing. "Ominous clouds" and "threatening skies" suggest danger. Both indicate foreboding.

26. B: profitable - Lucrative and profitable both mean producing much profit, money-making. "Lucrative business" and "profitable venture" both generate income. Both indicate financial gain.

27. D: serious - Somber and serious both mean dark or dull in color or tone, grave. "Somber mood" and "serious atmosphere" convey the same gravity. Both indicate seriousness.

28. A: peak - Zenith and peak both mean the highest point, apex. "Career zenith" and "mountain peak" represent the highest achievement or point. Both indicate the top.

29. C: unclear - Ambiguous and unclear both mean open to more than one interpretation, vague. "Ambiguous statement" and "unclear message" both create confusion. Both indicate vagueness.

30. E: persistent - Tenacious and persistent both mean holding firmly to something, determined. "Tenacious effort" and "persistent work" both show determination. Both indicate determination.

31. D: seed is to plant - Relationship: Beginning form to mature organism. An acorn develops into an oak tree, just as a seed develops into a plant. Both show developmental origins.

32. B: barometer is to pressure - Relationship: Measuring instrument to what it measures. A thermometer measures temperature, just as a barometer measures atmospheric pressure. Both show instruments and their measurements.

33. E: scorching is to hot - Relationship: Extreme degree to base quality. Frigid is extremely cold, just as scorching is extremely hot. Both show intensified versions of temperature conditions.

34. A: cowboy is to cattle - Relationship: Herder to animals herded. A shepherd tends sheep, just as a cowboy tends cattle. Both show people who manage specific animals.

35. C: hopeful is to hopeless - Relationship: Opposite perspectives/attitudes. An optimist is hopeful while a pessimist is negative, just as hopeful is opposite to hopeless. Both pairs show contrasting outlooks.

36. D: keyboard is to writer - Relationship: Primary tool to professional user. A palette is a painter's essential tool for holding colors, just as a keyboard is a writer's tool for creating text. Both show tools and their professional users.

37. B: foundation is to building - Relationship: Anchoring structure to what it supports. Roots anchor and nourish a tree, just as a foundation supports a building. Both show supportive base structures.

38. E: aurora is to polar region - Relationship: Optical phenomenon characteristic of environment. A mirage is an optical phenomenon typical of deserts, just as an aurora is an optical phenomenon typical of polar regions. Both show distinctive visual phenomena in specific environments.

39. A: melt is to freeze - Relationship: Opposite phase transitions. Evaporate (liquid to gas) is the opposite transition from condense (gas to liquid), just as melt (solid to liquid) is opposite to freeze (liquid to solid). Both pairs show reverse physical changes.

40. C: director is to film - Relationship: Creative leader to production they oversee. A choreographer creates and oversees dance, just as a director creates and oversees film. Both show creative leaders and their productions.

41. D: drought is to dehydration - Relationship: Environmental deprivation to resulting physical condition. Famine (lack of food) causes starvation, just as drought (lack of water) causes dehydration. Both show deprivation and resulting harm.

42. B: wrench is to mechanic - Relationship: Primary hand tool to professional. A scalpel is a surgeon's essential cutting tool, just as a wrench is a mechanic's essential tool. Both show professionals and their characteristic tools.

43. E: germination is to plant - Relationship: Developmental transformation process to organism. Metamorphosis transforms a caterpillar to butterfly, just as germination transforms a seed to plant. Both show transformative developmental processes.

44. A: occultation is to star - Relationship: Astronomical event where celestial body is hidden. An eclipse temporarily hides the sun, just as an occultation temporarily hides a star. Both show celestial objects being temporarily obscured.

45. C: fleeting is to enduring - Relationship: Opposite durations. Ephemeral (brief) is opposite to permanent (lasting), just as fleeting is opposite to enduring. Both pairs show contrasting time spans.

46. D: diurnal is to eagle - Relationship: Activity pattern to animal exemplifying it. Nocturnal describes owls (active at night), just as diurnal describes eagles (active during day). Both show temporal activity patterns and animals exemplifying them.

47. B: zenith is to nadir - Relationship: Highest point to lowest point. Summit is the highest point of a mountain while valley is low, just as zenith is the highest point while nadir is the lowest. Both pairs show vertical extremes.

48. E: amplify is to microphone - Relationship: Primary function to device performing it. Magnify is what a microscope does to images, just as amplify is what a microphone does to sound. Both show devices and their primary functions.

49. A: porous is to sponge - Relationship: Material property to object exemplifying it. Transparent describes windows (you can see through them), just as porous describes sponges (full of holes that absorb). Both show materials and their defining properties.

50. D: larva is to pupa - Relationship: Earlier developmental stage to next stage. A caterpillar transforms into a chrysalis, just as a larva becomes a pupa. Both show sequential insect development stages. (Chrysalis is the pupa stage specific to butterflies.)

51. D: constellation is to sky - Relationship: Named grouping to medium where found. An archipelago is a group of islands in an ocean, just as a constellation is a group of stars in the sky. Both show collections in their respective mediums.

52. B: lion is to zebra - Relationship: Predator to typical prey (with diet difference). A carnivore (meat-eater) hunts herbivores (plant-eaters), exemplified by lion hunting zebra. Both show the predator-prey relationship between different diet types.

53. E: commend is to laud - Relationship: Synonymous actions of evaluation. Censure and criticize are synonyms meaning to condemn, just as commend and laud are synonyms meaning to praise. Both pairs show similar evaluation actions.

54. A: speedometer is to speeding - Relationship: Measuring device to condition it detects. A thermometer detects fever (abnormally high temperature), just as a speedometer detects speeding (abnormally high speed). Both show instruments and the excessive conditions they reveal.

55. C: banish is to community - Relationship: Forced removal to group from which removed. Exile forces someone from a country, just as banish forces someone from a community. Both show expulsion from groups.

56. D: tuning fork is to sound - Relationship: Device that separates/affects to what it acts upon. A prism separates light into component colors, just as a tuning fork produces specific sound frequencies. Both show devices that work with waves (light waves and sound waves).

57. B: hasten is to expedite - Relationship: Synonymous actions meaning to speed up. Procrastinate and delay are synonyms meaning to put off, just as hasten and expedite are synonyms meaning to speed up. Both pairs show similar time-related actions.

58. E: respiration is to animals - Relationship: Essential life process to organism type. Photosynthesis is how plants produce energy, just as respiration is how animals produce energy. Both show fundamental metabolic processes.

59. A: fleet is to ship - Relationship: Named group to individual member. An archipelago is a group of islands, just as a fleet is a group of ships. Both show collective terms for grouped elements.

60. C: quill is to porcupine - Relationship: Defense mechanism to animal possessing it. Venom is a snake's defensive/offensive weapon, just as quills are a porcupine's defensive weapon. Both show animals and their protective/defensive features.

Quantitative

1. C: 14 - Divide 588 by 42: $588 \div 42 = 14$. This is a division fact from the 42 times table. Check: $42 \times 14 = 588$ ✓ Knowing multiplication facts helps solve division problems quickly.

2. E: 124 - Solve $p + 93 = 217$ by subtracting 93 from both sides: $p = 217 - 93 = 124$. Check: $124 + 93 = 217$ ✓ To undo addition, use subtraction.

3. B: 212 - The sequence adds 25 each time. 1st: 37. 2nd: 37 + 25 = 62. 3rd: 62 + 25 = 87. 4th: 87 + 25 = 112. 5th: 112 + 25 = 137. 6th: 137 + 25 = 162. 7th: 162 + 25 = 187. 8th: 187 + 25 = 212. This is an arithmetic sequence with common difference 25.

4. D: 1305 - Area of a rectangle = length × width = 45 × 29 = 1305 square units. Don't confuse with perimeter, which would be 2(45 + 29) = 148. Area measures the space inside.

5. A: 13 - Solve 42x = 546 by dividing both sides by 42: x = 546 ÷ 42 = 13. Check: 42 × 13 = 546 ✓ Division is the inverse of multiplication.

6. C: 165 - To find 5/8 of 264 books, multiply: (5/8) × 264. Divide 264 by 8 first: 264 ÷ 8 = 33. Then multiply by 5: 33 × 5 = 165 fiction books.

7. E: 28 - Follow order of operations (PEMDAS). Multiply first: 25 × 7 = 175. Then work left to right: 187 − 175 = 12, then 12 + 16 = 28. Multiplication must be done before addition and subtraction.

8. B: 1/8 - Multiples of 8 from 1 to 40 are: 8, 16, 24, 32, 40 (that's 5 numbers out of 40 possible outcomes). Probability = 5/40. Simplify by dividing both by 5: 5/40 = 1/8. Count favorable outcomes over total possible outcomes.

9. D: 13/20 - Convert 0.65 to a fraction: 0.65 = 65/100. Simplify by dividing both numerator and denominator by 5: 65 ÷ 5 = 13 and 100 ÷ 5 = 20, giving 13/20. Check: 13 ÷ 20 = 0.65 ✓

10. A: 52 - The radius of a circle is half the diameter. If diameter = 104, then radius = 104 ÷ 2 = 52. Remember: diameter goes all the way across, radius goes from center to edge.

11. C: 7 - Solve 31y + 67 = 284 in two steps. Subtract 67 from both sides: 31y = 217. Divide both sides by 31: y = 7. Check: 31(7) + 67 = 217 + 67 = 284 ✓

12. E: $864 - Calculate 40% off of $1440. Method 1: Find discount: 0.40 × $1440 = $576, then subtract: $1440 − $576 = $864. Method 2: If 40% off, you pay 60%: 0.60 × $1440 = $864.

13. B: 261 - Calculate each exponent first, then subtract. $45^2 = 45 \times 45 = 2025$. Then $42^2 = 42 \times 42 = 1764$. Finally subtract: 2025 − 1764 = 261. Exponents must be calculated before subtraction.

14. D: 270 - The compound inequality w > 265 and w < 270 means w must be greater than 265 AND less than 270. This is a "could NOT" question. 270 does NOT satisfy w < 270 (270 is not less than 270; it's equal). All other choices fall between 265 and 270.

15. A: 52 - Set up a proportion: 32 oz/48 muffins = x oz/78 muffins. Cross-multiply: 32 × 78 = 48 × x, so 2496 = 48x. Divide: x = 52 ounces. Or find oz per muffin: 32/48 = 2/3 oz per muffin, so 78 × (2/3) = 52 oz.

16. C: 8/51 - When subtracting fractions with the same denominator, keep the denominator and subtract numerators: 39/51 − 31/51 = (39 − 31)/51 = 8/51. The denominator stays 51; only subtract the numerators.

17. E: 33,900 - When rounding to the nearest hundred, look at the tens digit. In 33,926, the tens digit is 2. Since 2 < 5, round down: keep the hundreds digit as 9, making 33,900.

18. B: 120 - The LCM is the smallest number both numbers divide into evenly. List multiples: 40: 40, 80, 120, 160... and 60: 60, 120, 180... The first common multiple is 120. Verify: 120 ÷ 40 = 3 ✓ and 120 ÷ 60 = 2 ✓

19. D: 2106 - Examine the pattern: 26 to 78 is ×3, 78 to 234 is ×3, 234 to 702 is ×3. Each number triples. This is a geometric sequence with ratio 3. Next number: 702 × 3 = 2106.

20. A: 1118 - Area of a triangle = (base × height) ÷ 2 = (52 × 43) ÷ 2 = 2236 ÷ 2 = 1118 square units. You can also use formula A = ½bh. A triangle's area is always half that of a rectangle with the same base and height.

21. C: 384 - To find 96% of 400, multiply: 0.96 × 400 = 384. Mental math: 100% of 400 is 400, so 96% is 400 − (4% of 400) = 400 − 16 = 384.

22. E: 13 - Solve 43 × n = 559 by dividing both sides by 43: n = 559 ÷ 43 = 13. Check: 43 × 13 = 559 ✓ Think "43 times what equals 559?"

23. B: 10 - Work backwards from the result. If the result is 175 after subtracting 35, then before subtracting the value was 175 + 35 = 210. If multiplying by 21 gave 210, the original number was 210 ÷ 21 = 10. Check: 10 × 21 = 210, then 210 − 35 = 175 ✓

24. D: 36 - The ratio 8:3 means for every 8 tennis balls, there are 3 golf balls. If there are 96 tennis balls, find how many groups of 8: 96 ÷ 8 = 12 groups. Each group has 3 golf balls, so total golf balls = 12 × 3 = 36. Or proportion: 8/3 = 96/x, cross multiply: 8x = 288, so x = 36.

25. A: 379 - Follow order of operations. Calculate the exponent first: $18^2 = 324$. Then work left to right: 90 + 324 = 414, then 414 − 35 = 379. Exponents are calculated before addition and subtraction.