MIDDLE LEVEL SSAT PRACTICE TEST 9

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've been given a magical pen that makes whatever you write come true—but only for 24 hours. Describe what happens when you decide to use it for the first time.

Topic B: Describe someone who changed the way you think about yourself or the world. What did they do or say that had such a lasting impact? How are you different because of knowing them?

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 448 ÷ 32?

A. 12

B. 15

C. 13

D. 16

E. 14

2. If s − 61 = 97, then s =

A. 36

B. 158

C. 61

D. 97

E. 168

3. A sequence follows the rule: subtract 13 from the previous number. If the first number is 104, what is the 7th number?

A. 52

B. 65

C. 78

D. 26

E. 39

4. What is the area of a rectangle with length 35 and width 19?

A. 665

B. 54

C. 108

D. 660

E. 700

5. If $30x = 390$, then $x =$

A. 360

B. 420

C. 13

D. 30

E. 12

6. A club has 168 members. If 5/7 of them attended the meeting, how many attended?

A. 24

B. 48

C. 72

D. 96

E. 120

7. What is $127 - 17 \times 6 + 10$?

A. 720

B. 35

C. 810

D. 730

E. 25

8. A spinner has 30 equal sections numbered 1 through 30. What is the probability of landing on a multiple of 6?

A. 5/30

B. 1/5

C. 6/30

D. 1/6

E. 4/30

9. Which of the following is equivalent to 0.65?

A. 13/20

B. 65/10

C. 6/5

D. 1/65

E. 65/1000

10. A circle has a diameter of 74. What is its radius?

A. 148

B. 74

C. 37

D. 18.5

E. 111

11. If $21y + 38 = 185$, then $y =$

A. 38

B. 223

C. 21

D. 8

E. 7

12. A television originally costs $720. It's now on sale for 25% off. What is the sale price?

A. $695

B. $540

C. $180

D. $600

E. $450

13. What is $35^2 - 32^2$?

A. 3

B. 1024

C. 1225

D. 201

E. 9

14. If $v > 195$ and $v < 200$, which could NOT be the value of v?

A. 195

B. 196

C. 198.5

D. 197

E. 199

15. A recipe requires 22 cups of milk to make 33 servings. How many cups are needed for 54 servings?

A. 33

B. 44

C. 36

D. 40

E. 30

16. What is 29/37 − 21/37?

A. 50/37

B. 21/37

C. 8/74

D. 29/74

E. 8/37

17. Round 23,672 to the nearest hundred.

A. 23,600

B. 23,700

C. 24,000

D. 23,670

E. 23,650

18. What is the least common multiple (LCM) of 20 and 30?

A. 10

B. 600

C. 40

D. 60

E. 50

19. If the pattern continues: 16, 48, 144, 432, ___, what is the next number?

A. 1296

B. 864

C. 576

D. 720

E. 1728

20. A triangle has a base of 42 and a height of 33. What is its area?

A. 75

B. 1386

C. 693

D. 150

E. 924

21. What is 92% of 275?

A. 92

B. 240

C. 260

D. 250

E. 253

22. If $33 \times m = 429$, then m =

A. 12

B. 13

C. 14

D. 33

E. 396

23. A number is divided by 11, then 15 is added. The result is 24. What is the number?

A. 264

B. 154

C. 121

D. 99

E. 110

24. The ratio of tennis balls to baseballs in a bag is 8:5. If there are 64 tennis balls, how many baseballs are there?

A. 40

B. 48

C. 56

D. 80

E. 32

25. What is $65 + 13^2 - 23$?

A. 169

B. 234

C. 211

D. 65

E. 42

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

The monarch butterfly's annual migration is one of nature's most remarkable phenomena. Each fall, millions of monarchs travel up to 3,000 miles from Canada and the northern United States to specific mountain forests in central Mexico. What makes this journey extraordinary is that no individual butterfly completes the entire round trip—the migration spans multiple generations.

Monarchs live only two to six weeks during the summer breeding season, going through several generations. But the generation born in late summer is different—these "super generation" butterflies live up to nine months. They're the ones that migrate south, spending winter in Mexico before beginning the return journey north in spring. Along the way, they lay eggs and die, leaving their offspring to continue the journey north, breed, and eventually produce the next super generation.

Scientists are still learning how monarchs navigate with such precision. They use the sun as a compass, adjusting their flight path throughout the day as the sun moves across the sky. They also appear to sense Earth's magnetic field, which helps them maintain direction even on cloudy days. Remarkably, monarchs return to the same small areas in Mexico each year—sometimes even the same trees their great-great-grandparents roosted in—despite never having been there before.

However, monarch populations have declined dramatically. Habitat loss, pesticide use, and climate change threaten both their breeding grounds in North America and their winter sanctuaries in Mexico. The milkweed plants that monarch caterpillars depend on are disappearing as agricultural practices change. Conservation efforts focus on protecting critical habitats and planting milkweed corridors along migration routes.

Understanding and preserving the monarch migration requires international cooperation. The butterflies don't recognize borders, and their survival depends on healthy ecosystems spanning three countries. Protecting the monarch means protecting the entire pathway they travel—a reminder that nature's wonders often require us to think beyond our own boundaries.

1. The "super generation" of monarchs is special because they

A. are larger than other generations

B. fly faster

C. live up to nine months

D. breed more often

E. avoid predators better

2. Monarchs navigate using

A. the sun and Earth's magnetic field

B. the stars only

C. wind patterns

D. temperature changes

E. ocean currents

3. Monarch populations have declined due to

A. overpopulation

B. too much food

C. increased rainfall

D. natural selection

E. habitat loss and pesticide use

4. The migration spans approximately how many miles?

A. 500 miles

B. 3,000 miles

C. 1,000 miles

D. 5,000 miles

E. 10,000 miles

5. Monarch caterpillars depend on

A. oak trees

B. pine needles

C. grass

D. milkweed plants

E. flower nectar

Passage 2

The email notification lit up my phone at 11:47 PM: "Congratulations! Your essay has been selected for the national anthology."

I stared at the screen, reading it three times. My essay. The one about Dad's deportation. The one I'd almost deleted a dozen times because writing it hurt too much. That essay was going to be published.

"Mija, why are you still awake?" Mom called from her room.

I couldn't answer. My throat was too tight. For months, I'd kept my writing secret—the essays about being the daughter of an undocumented immigrant, about translating for Mom at parent-teacher conferences when I was seven, about the fear that lived in our house like an unwelcome guest.

I'd submitted the essay on impulse, never believing anyone would care about my story. But the selection committee's note said my words were "powerful and necessary—a voice that needs to be heard."

Necessary. As if my pain had purpose.

The next morning, I showed Mom the email. She read it slowly, her English still uncertain after fifteen years in this country. When she looked up, tears streaked her face.

"You wrote about Papi?"

I nodded, suddenly afraid. "Are you angry?"

She pulled me close. "Angry? No, mija. I'm proud. So proud." She held my face in her hands. "Your father would be proud too. He always said you would do important things with words."

"But I wrote about private things. About us."

"You wrote the truth," she said firmly. "And the truth? It's not something to hide. It's something to share, so people understand. So they see we're human, not just... problems to solve."

That afternoon, I started writing again—this time without fear. Not because the pain was gone, but because Mom was right. Our story mattered. And if my words could help even one person see that, then maybe all the hurt was worth something after all.

6. The narrator's essay was about

A. school experiences

B. sports

C. their father's deportation

D. friendship

E. vacation

7. The narrator had kept their writing

A. secret

B. on display

C. published already

D. in a journal Mom read

E. shared with everyone

8. Mom has lived in the country for

A. five years

B. ten years

C. twenty years

D. one year

E. fifteen years

9. The narrator initially worried Mom would be

A. happy

B. angry

C. indifferent

D. confused

E. excited

10. By the end, the narrator decides to

A. stop writing

B. delete the essay

C. hide their work

D. continue writing without fear

E. write only happy stories

Passage 3

Hurricanes form over warm ocean waters when several atmospheric conditions align. The ocean temperature must be at least 80°F (27°C) to provide enough heat and moisture. Warm, moist air rises rapidly, creating an area of low pressure below. As more air rushes in to fill this void, the Coriolis effect—caused by Earth's rotation—sets the entire system spinning.

The hurricane's structure is distinctive. At the center lies the eye, a calm area with clear skies and light winds, typically 20-40 miles wide. Surrounding the eye is the eyewall, where the storm's strongest winds and heaviest rainfall occur. Spiral rain bands extend outward from the eyewall, bringing additional wind and rain.

Hurricanes are classified by wind speed using the Saffir-Simpson scale, ranging from Category 1 (74-95 mph winds) to Category 5 (157+ mph winds). However, wind speed isn't the only danger. Storm surge—the abnormal rise in sea level caused by the hurricane pushing ocean water toward shore—often causes the most destruction and loss of life. A major hurricane can generate a storm surge over 20 feet high, flooding coastal areas miles inland.

Predicting hurricane paths has improved dramatically with satellite technology and computer modeling. Meteorologists can now forecast a hurricane's likely path days in advance, giving communities time to evacuate. However, hurricanes can change direction unexpectedly, and predicting exactly where they'll make landfall remains challenging. Even small changes in path can mean the difference between a direct hit and a near miss.

Climate change is affecting hurricane behavior. Warmer ocean temperatures provide more energy for storms, potentially making them more intense. Rising sea levels amplify storm surge damage. While the total number of hurricanes may not increase, scientists predict that a higher percentage will reach Category 4 or 5 strength, making preparedness and coastal resilience increasingly critical.

11. For hurricanes to form, ocean temperature must be at least

A. 60°F

B. 70°F

C. 80°F

D. 90°F

E. 100°F

12. The hurricane's eye is characterized by

A. calm conditions and clear skies

B. the strongest winds

C. heaviest rainfall

D. coldest temperatures

E. darkest clouds

13. Storm surge refers to

A. wind speed

B. rainfall amount

C. cloud formation

D. lightning frequency

E. abnormal rise in sea level

14. The Saffir-Simpson scale classifies hurricanes by

A. size

B. wind speed

C. rainfall

D. duration

E. direction

15. Climate change may cause

A. fewer hurricanes overall

B. all hurricanes to weaken

C. oceans to cool

D. more intense hurricanes

E. hurricanes to stop forming

Passage 4

The ancient city of Pompeii offers a unique window into Roman life because of the catastrophic event that destroyed it. On August 24, 79 CE, Mount Vesuvius erupted with tremendous force, burying Pompeii under volcanic ash and pumice. The eruption killed thousands of people, but it also perfectly preserved the city, creating an archaeological treasure trove.

Unlike other ancient ruins that crumbled over centuries, Pompeii was sealed in a time capsule. Buildings remained largely intact, with walls still bearing frescoes and graffiti. Carbonized food sat on tables. Shops contained their goods. The volcanic ash hardened around the victims, and when it eventually decomposed, it left hollow spaces in the exact shapes of their bodies at the moment of death.

In the 18th century, when excavations began, archaeologists discovered they could pour plaster into these body-shaped hollows, creating haunting casts that capture people's final moments—a mother shielding her child, a man covering his face, a dog straining against its chain. These casts humanize history in a way nothing else can, showing us real people frozen in time.

Pompeii reveals intimate details of daily Roman life. We see fast-food restaurants (thermopolia) where ordinary Romans bought meals, brothels with explicit advertising, political campaign slogans painted on walls, and graffiti ranging from declarations of love to crude insults. We learn what Romans ate, how they decorated their homes, what gods they worshipped, and how both rich and poor lived.

Today, Pompeii faces new threats. Exposure to air, water, and millions of tourists causes ongoing deterioration. Inadequate maintenance and funding have led to collapses of ancient structures. Conservationists race against time to preserve what survives, using modern technology to document and protect the site. Pompeii's preservation is a race between human effort and natural decay—the same ash that saved the city for 2,000 years can't protect it forever.

16. Mount Vesuvius erupted in

A. 79 BCE

B. 179 CE

C. 79 CE

D. 179 BCE

E. 279 CE

17. Plaster casts were created by

A. pouring plaster into hollow spaces left by decomposed bodies

B. carving stone

C. molding clay

D. painting frescoes

E. shaping metal

18. Thermopolia were

A. temples

B. homes

C. government buildings

D. theaters

E. fast-food restaurants

19. Pompeii was preserved because

A. Romans protected it

B. volcanic ash sealed it

C. it was built of stone

D. earthquakes strengthened it

E. invaders avoided it

20. Today, Pompeii faces threats from

A. volcanic activity only

B. war

C. flooding

D. exposure, tourists, and inadequate maintenance

E. wildlife

Passage 5

I'd practiced my speech a hundred times. Standing before the mirror, reciting to my dog, mumbling through it during lunch. But now, waiting backstage for the debate finals, my carefully memorized words vanished like smoke.

"You're going to be great," whispered Jamie, my debate partner. "Just breathe."

"I can't remember anything," I said. "Not one word. My mind is completely blank."

"Then don't remember," Jamie said. "Just talk. You know this topic inside and out. Trust yourself."

The moderator called my name. My legs barely carried me to the podium. Two hundred faces stared from the audience. The judges sat front and center, pens ready. My opponent looked supremely confident.

The timer started.

I opened my mouth, and somehow, words came. Not my memorized speech—that was gone. But other words, better words. I talked about the environmental policy we'd researched, about the real families it would affect, about the grandmother I'd interviewed who couldn't afford her heating bills. I forgot about the judges and spoke to that grandmother, imagining her listening.

My opponent's rebuttal was polished and precise, exactly as rehearsed. But it sounded hollow, memorized. My response wasn't elegant, but it was real—filled with the passion I'd forgotten I had.

When the debate ended, I slumped in my seat, exhausted. "I messed up," I told Jamie. "I forgot everything."

"No," Jamie said, grinning. "You forgot your speech. But you remembered why we're here. That's way better."

Twenty minutes later, when they announced our team had won, the judges commented on my "authentic voice" and "genuine conviction." I'd been so afraid of forgetting my perfect speech that I almost missed the point: the best words aren't the ones you memorize. They're the ones you mean.

21. The narrator is participating in

A. a play

B. a concert

C. a debate competition

D. a science fair

E. a spelling bee

22. Before going on stage, the narrator felt

A. unable to remember their speech

B. supremely confident

C. bored

D. angry

E. indifferent

23. Jamie advises the narrator to

A. quit

B. read from notes

C. copy the opponent

D. memorize more

E. trust themselves and just talk

24. The narrator's speech ended up being

A. exactly as memorized

B. authentic and passionate

C. identical to their opponent's

D. very short

E. read from notes

25. The judges praised the narrator's

A. memorization

B. formal language

C. quiet demeanor

D. authentic voice and genuine conviction

E. appearance

Passage 6

Antibiotic resistance poses one of the most serious threats to global public health. When bacteria are exposed to antibiotics, most die—but occasionally, random genetic mutations make some bacteria

resistant. These survivors multiply, passing resistance to their offspring. Over time, resistant strains become dominant, rendering once-effective antibiotics useless.

This process, called natural selection, is accelerated by antibiotic misuse. When people take antibiotics for viral infections (which antibiotics can't treat), stop treatment early, or take antibiotics prescribed to others, they create ideal conditions for resistance to develop. In agriculture, antibiotics given to healthy livestock to promote growth also contribute to resistance. Resistant bacteria can spread from animals to humans through food, water, or direct contact.

The consequences are alarming. Common infections that were easily treated for decades now resist multiple antibiotics. Tuberculosis, gonorrhea, and staph infections have developed resistant strains. Some bacteria resist all known antibiotics, leaving doctors with no treatment options. Without effective antibiotics, routine surgeries, cancer chemotherapy, and organ transplants become extremely dangerous because we can't prevent or treat the infections they cause.

Addressing antibiotic resistance requires multiple approaches. Doctors must prescribe antibiotics only when truly necessary. Patients must complete full courses of treatment. Agriculture needs to reduce routine antibiotic use in livestock. Pharmaceutical companies must develop new antibiotics, though this is economically challenging—antibiotics are used briefly, making them less profitable than drugs taken long-term.

Scientists are also exploring alternatives. Bacteriophages—viruses that kill bacteria—might treat some infections. CRISPR technology could potentially disable bacterial resistance genes. Enhanced infection prevention could reduce antibiotic need. But no single solution exists. Preserving antibiotics' effectiveness requires coordinated global action, from individual patients to international health organizations.

26. Antibiotic resistance develops when

A. people take too many vitamins

B. bacteria die quickly

C. bacteria with resistance mutations survive and multiply

D. viruses mutate

E. doctors prescribe correctly

27. Antibiotics are ineffective against

A. viruses

B. bacterial infections

C. resistant bacteria only

D. all diseases

E. fungi

28. Routine antibiotic use in agriculture contributes to resistance by

A. making animals healthier

B. preventing all disease

C. killing all bacteria instantly

D. improving milk production

E. creating resistant bacteria that spread to humans

29. Without effective antibiotics, procedures like surgery become dangerous because

A. doctors lack skill

B. infections can't be prevented or treated

C. hospitals close

D. patients refuse treatment

E. equipment fails

30. Bacteriophages are

A. bacteria that kill viruses

B. antibiotic pills

C. cancer treatments

D. viruses that kill bacteria

E. resistance genes

Passage 7

The college acceptance letter felt heavy in my hands. Stanford. Full ride. Computer Science. Everything I'd worked for since ninth grade—4.0 GPA, perfect SAT scores, three summers at coding camps, county science fair winner twice.

"This is incredible!" Mom said, reading over my shoulder. "We have to tell everyone!"

But I couldn't share her excitement. Because yesterday, I'd received a different letter—one I hadn't told anyone about. A letter from Dad's oncologist. Stage four pancreatic cancer. Aggressive treatment starting immediately. Prognosis: uncertain.

Stanford was 2,000 miles away. Dad was here, facing the fight of his life. And I was supposed to choose?

"I'm thinking about community college instead," I said quietly. "Just for the first year. Maybe two."

Mom's smile vanished. "Absolutely not."

"But Dad—"

"Would never forgive himself if you gave up Stanford for him." She set the letter down carefully. "Neither would I."

"How can I leave when he's sick?"

Dad's voice came from the doorway. "How can you stay when you have this opportunity?" He looked thinner already, tired. But his eyes were fierce. "I'm not dying tomorrow, kiddo. And even if I were—especially if I were—I'd want you at Stanford."

"That's not fair—"

"Life's not fair," he said, sitting beside me. "I've got cancer. That's not fair either. But you throwing away your dreams? That doesn't help me. It just means the cancer took more than it deserved."

"What if something happens while I'm gone?"

"Then you'll come home. Stanford to here is six hours by plane. We'll manage." He took my hand. "But here's the thing about being a parent. My job isn't to keep you close. It's to help you fly. Even when—especially when—it's hard for me."

Three months later, I moved into my Stanford dorm. Dad insisted on driving out with Mom to help me unpack. He was weaker, but smiling. "This," he said, looking around my tiny room with pride, "this is what I'm fighting for. To see you become who you're meant to be."

He lived another two years—long enough to see me declared my major, make dean's list, land an internship. Long enough to know I was going to be okay. And when he died, I realized his final gift wasn't just encouragement to chase my dreams. It was showing me that love sometimes means letting go.

31. The narrator received acceptance from

A. Harvard

B. MIT

C. Stanford

D. Berkeley

E. Yale

32. The father was diagnosed with

A. stage four pancreatic cancer

B. heart disease

C. diabetes

D. pneumonia

E. nothing serious

33. The narrator initially considered

A. rejecting all colleges

B. dropping out

C. traveling abroad

D. working full-time

E. attending community college to stay near family

34. The father believed that the narrator staying home would

A. help him recover

B. mean the cancer took more than it deserved

C. make treatment easier

D. be the right choice

E. save money

35. The father lived

A. one month after the narrator left

B. six months

C. one year

D. two years

E. five years

Passage 8

Bioluminescent organisms—living things that produce light—exist throughout nature, from fireflies to deep-sea fish. This ability serves various purposes: attracting prey, finding mates, camouflaging from predators, or warning of danger. While the specific mechanisms vary, most bioluminescence involves a chemical reaction between a light-emitting molecule (luciferin) and an enzyme (luciferase).

The deep ocean, where sunlight never penetrates, hosts the greatest concentration of bioluminescent creatures. Scientists estimate that 90% of deep-sea organisms produce light. The anglerfish dangles a glowing lure to attract prey. Certain squid create glowing clouds to confuse predators. Some fish have

light organs on their bellies that match the faint light from above, erasing their shadows and making them invisible to predators below.

On land, fireflies use bioluminescence for courtship. Males flash specific patterns while flying; if a female of the same species likes what she sees, she flashes back from the ground. Different firefly species have different flash patterns—some flash once, others in rapid bursts, some glow steadily. This specificity prevents interbreeding between species.

One of the most spectacular bioluminescent displays occurs in certain coastal areas where dinoflagellates—single-celled organisms—produce light when disturbed. Swimming, kayaking, or even walking through shallow water creates glowing blue-green trails. In some bays, the concentration is so high that boats leave luminous wakes, and fish moving underwater appear as glowing streaks.

Scientists study bioluminescence not just for understanding nature but for practical applications. The genes responsible for bioluminescence have been inserted into other organisms, making cells glow so researchers can track them. Glowing proteins help visualize cancer cells, track how diseases spread, or monitor how well treatments work. What began as nature's light show has become a powerful tool for medical research.

36. Most bioluminescence involves a reaction between

A. water and salt

B. oxygen and carbon

C. luciferin and luciferase

D. nitrogen and hydrogen

E. chlorophyll and sunlight

37. Approximately what percentage of deep-sea organisms produce light?

A. 90%

B. 50%

C. 25%

D. 10%

E. 75%

38. Fireflies use bioluminescence primarily for

A. hunting

B. navigation

C. hiding

D. sleeping

E. courtship

39. Dinoflagellates produce light when they are

A. sleeping

B. disturbed

C. eating

D. cold

E. dry

40. In medical research, bioluminescent genes help scientists

A. cure all diseases

B. create new species

C. eliminate bacteria

D. track and visualize cells

E. produce antibiotics

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. NIMBLE:

A. slow

B. clumsy

C. awkward

D. agile

E. stiff

2. BOISTEROUS:

A. quiet

B. rowdy

C. calm

D. peaceful

E. subdued

3. TERSE:

A. concise

B. lengthy

C. wordy

D. elaborate

E. detailed

4. IMMACULATE:

A. dirty

B. soiled

C. messy

D. stained

E. spotless

5. PLACID:

A. agitated

B. turbulent

C. calm

D. stormy

E. violent

6. FUTILE:

A. successful

B. effective

C. productive

D. useless

E. beneficial

7. COVERT:

A. open

B. secret

C. obvious

D. public

E. revealed

8. LENIENT:

A. tolerant

B. strict

C. harsh

D. severe

E. rigid

9. INEPT:

A. skilled

B. capable

C. competent

D. talented

E. incompetent

10. OMINOUS:

A. cheerful

B. bright

C. threatening

D. happy

E. pleasant

11. VALIANT:

A. cowardly

B. fearful

C. timid

D. brave

E. weak

12. MEDIOCRE:

A. excellent

B. average

C. superior

D. outstanding

E. exceptional

13. ZEALOT:

A. fanatic

B. moderate

C. indifferent

D. apathetic

E. neutral

14. TEDIOUS:

A. exciting

B. interesting

C. engaging

D. thrilling

E. boring

15. LATENT:

A. obvious

B. visible

C. hidden

D. apparent

E. clear

16. FRUGAL:

A. wasteful

B. extravagant

C. lavish

D. thrifty

E. generous

17. SERENE:

A. chaotic

B. peaceful

C. turbulent

D. disturbed

E. anxious

18. MALICE:

A. ill will

B. kindness

C. goodwill

D. benevolence

E. compassion

19. WARY:

A. trusting

B. confident

C. certain

D. assured

E. cautious

20. INCESSANT:

A. occasional

B. rare

C. constant

D. sporadic

E. intermittent

21. ARDUOUS:

A. easy

B. simple

C. effortless

D. difficult

E. convenient

22. LUCRATIVE:

A. unprofitable

B. profitable

C. costly

D. expensive

E. losing

23. TRANSIENT:

A. temporary

B. permanent

C. lasting

D. enduring

E. eternal

24. VERBOSE:

A. concise

B. brief

C. short

D. terse

E. wordy

25. CANDOR:

A. deception

B. dishonesty

C. honesty

D. lies

E. pretense

26. SOMBER:

A. cheerful

B. bright

C. happy

D. gloomy

E. joyful

27. MUNDANE:

A. extraordinary

B. ordinary

C. unusual

D. remarkable

E. exceptional

28. BENEVOLENT:

A. kind

B. cruel

C. mean

D. harsh

E. malicious

29. ENHANCE:

A. diminish

B. reduce

C. lessen

D. weaken

E. improve

30. AVERSION:

A. attraction

B. liking

C. dislike

D. fondness

E. preference

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. Drought is to rain as

A. storm is to wind

B. famine is to food

C. flood is to water

D. snow is to cold

E. heat is to sun

32. Architect is to building as

A. teacher is to student

B. painter is to canvas

C. writer is to reader

D. composer is to symphony

E. actor is to audience

33. Whisper is to shout as

A. trickle is to gush

B. walk is to run

C. laugh is to cry

D. eat is to drink

E. sit is to stand

34. Tadpole is to frog as

A. egg is to bird

B. seed is to flower

C. larva is to butterfly

D. calf is to cow

E. kitten is to cat

35. Thermometer is to temperature as

A. ruler is to area

B. clock is to watch

C. scale is to size

D. compass is to map

E. speedometer is to speed

36. Lens is to camera as

A. frame is to picture

B. pupil is to eye

C. screen is to television

D. page is to book

E. key is to lock

37. Rehearsal is to play as

A. audience is to theater

B. costume is to actor

C. stage is to curtain

D. practice is to game

E. applause is to performance

38. Peninsula is to land as

A. bay is to water

B. mountain is to valley

C. island is to ocean

D. river is to lake

E. desert is to sand

39. Scalpel is to surgeon as

A. hammer is to carpenter

B. brush is to painter

C. chisel is to sculptor

D. pen is to writer

E. needle is to tailor

40. Drought is to arid as

A. flood is to wet

B. storm is to calm

C. wind is to still

D. rain is to dry

E. flood is to soaked

41. Timid is to bold as

A. brave is to courageous

B. meek is to assertive

C. shy is to quiet

D. scared is to afraid

E. nervous is to anxious

42. Conductor is to orchestra as

A. teacher is to classroom

B. pilot is to airplane

C. captain is to boat

D. director is to film

E. chef is to restaurant

43. Preamble is to document as

A. introduction is to book

B. conclusion is to essay

C. chapter is to novel

D. verse is to poem

E. scene is to play

44. Sculptor is to marble as

A. painter is to gallery

B. writer is to library

C. potter is to clay

D. musician is to concert

E. dancer is to stage

45. Transparent is to opaque as

A. clear is to cloudy

B. bright is to dull

C. light is to heavy

D. smooth is to rough

E. visible is to invisible

46. Summit is to mountain as

A. floor is to building

B. peak is to wave

C. top is to tree

D. bottom is to ocean

E. center is to circle

47. Hibernation is to winter as

A. migration is to spring

B. pollination is to summer

C. harvest is to fall

D. estivation is to summer

E. germination is to spring

48. Prune is to tree as

A. edit is to manuscript

B. water is to plant

C. harvest is to crop

D. mow is to grass

E. plant is to seed

49. Archipelago is to islands as

A. forest is to tree

B. desert is to sand

C. constellation is to stars

D. ocean is to water

E. mountain is to peak

50. Cacophony is to sound as

A. silence is to noise

B. harmony is to music

C. melody is to song

D. rhythm is to beat

E. chaos is to order

51. Nocturnal is to night as

A. annual is to year

B. diurnal is to day

C. seasonal is to winter

D. weekly is to month

E. daily is to hour

52. Protagonist is to antagonist as

A. friend is to companion

B. ally is to partner

C. leader is to follower

D. hero is to villain

E. teacher is to student

53. Famine is to abundance as

A. scarcity is to plenty

B. drought is to rain

C. poverty is to wealth

D. hunger is to food

E. thirst is to water

54. Lens is to magnify as

A. mirror is to reverse

B. window is to open

C. prism is to refract

D. glass is to break

E. screen is to display

55. Quench is to thirst as

A. ignite is to fire

B. satisfy is to hunger

C. create is to art

D. build is to house

E. satiate is to appetite

56. Archipelago is to island as

A. desert is to oasis

B. bouquet is to flower

C. forest is to tree

D. ocean is to wave

E. mountain is to summit

57. Preamble is to conclusion as

A. beginning is to middle

B. start is to pause

C. opening is to intermission

D. preface is to epilogue

E. introduction is to body

58. Diminish is to increase as

A. shrink is to expand

B. grow is to develop

C. rise is to ascend

D. fall is to drop

E. reduce is to lessen

59. Carnivore is to meat as

A. omnivore is to everything

B. herbivore is to plants

C. herbivore is to vegetation

D. predator is to prey

E. scavenger is to carrion

60. Quarantine is to isolate as

A. gather is to disperse

B. unite is to separate

C. connect is to join

D. combine is to merge

E. detain is to confine

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 476 ÷ 34?

A. 14

B. 13

C. 15

D. 16

E. 12

2. If w + 73 = 169, then w =

A. 242

B. 73

C. 96

D. 169

E. 106

3. A sequence follows the rule: add 21 to the previous number. If the first number is 28, what is the 6th number?

A. 91

B. 112

C. 70

D. 49

E. 133

4. What is the area of a rectangle with length 37 and width 21?

A. 58

B. 777

C. 116

D. 770

E. 800

5. If $32x = 416$, then $x =$

A. 384

B. 448

C. 32

D. 13

E. 12

6. A library has 180 books on display. If 7/9 of them are fiction, how many fiction books are on display?

A. 140

B. 120

C. 100

D. 160

E. 90

7. What is $138 - 18 \times 7 + 11$?

A. 948

B. 939

C. 23

D. 13

E. 12

8. A bag contains 7 green marbles, 9 yellow marbles, and 12 red marbles. What is the probability of selecting a green marble?

A. 7/28

B. 9/28

C. 12/28

D. 1/7

E. 1/4

9. Which of the following is equivalent to 0.95?

A. 95/10

B. 19/20

C. 9/5

D. 1/95

E. 95/1000

10. A circle has a radius of 33. What is its diameter?

A. 16.5

B. 33

C. 99

D. 66

E. 132

11. If $23y + 41 = 202$, then $y =$

A. 7

B. 243

C. 23

D. 41

E. 8

12. A smartphone originally costs $800. It's now on sale for 35% off. What is the sale price?

A. $765

B. $280

C. $520

D. $600

E. $480

13. What is $37^2 - 34^2$?

A. 3

B. 1156

C. 1369

D. 9

E. 213

14. If $z > 205$ and $z < 210$, which could NOT be the value of z?

A. 206

B. 205

C. 207.5

D. 208

E. 209

15. A recipe requires 24 ounces of flour to make 36 cookies. How many ounces are needed for 60 cookies?

A. 36

B. 48

C. 50

D. 40

E. 30

16. What is 31/41 − 23/41?

A. 8/41

B. 54/41

C. 23/41

D. 8/82

E. 31/82

17. Round 25,783 to the nearest hundred.

A. 25,700

B. 25,780

C. 25,800

D. 26,000

E. 25,750

18. What is the least common multiple (LCM) of 24 and 36?

A. 12

B. 864

C. 48

D. 36

E. 72

19. If the pattern continues: 18, 54, 162, 486, ___, what is the next number?

A. 972

B. 1458

C. 810

D. 648

E. 1944

20. A triangle has a base of 44 and a height of 35. What is its area?

A. 79

B. 1540

C. 158

D. 770

E. 616

21. What is 86% of 300?

A. 258

B. 86

C. 240

D. 260

E. 300

22. If $35 \times k = 455$, then $k =$

A. 12

B. 14

C. 13

D. 35

E. 420

23. A number is multiplied by 17, then 29 is subtracted. The result is 105. What is the number?

A. 9

B. 7

C. 6

D. 10

E. 8

24. The ratio of footballs to soccer balls in a storage room is 9:4. If there are 72 footballs, how many soccer balls are there?

A. 36

B. 32

C. 48

D. 54

E. 28

25. What is $70 + 14^2 - 25$?

A. 196

B. 266

C. 59

D. 241

E. 45

ANSWERS AND EXPLANATIONS

Quantitative

1. E: 14 - Divide 448 by 32: 448 ÷ 32 = 14. This is a division fact from the 32 times table. Check: 32 × 14 = 448 ✓ Knowing multiplication facts helps solve division problems quickly.

2. B: 158 - Solve s − 61 = 97 by adding 61 to both sides: s = 97 + 61 = 158. Check: 158 − 61 = 97 ✓ To undo subtraction, use addition.

3. D: 26 - The sequence subtracts 13 each time. 1st: 104. 2nd: 104 − 13 = 91. 3rd: 91 − 13 = 78. 4th: 78 − 13 = 65. 5th: 65 − 13 = 52. 6th: 52 − 13 = 39. 7th: 39 − 13 = 26. This is an arithmetic sequence with common difference −13.

4. A: 665 - Area of a rectangle = length × width = 35 × 19 = 665 square units. Don't confuse with perimeter, which would be 2(35 + 19) = 108. Area measures the space inside.

5. C: 13 - Solve 30x = 390 by dividing both sides by 30: x = 390 ÷ 30 = 13. Check: 30 × 13 = 390 ✓ Division is the inverse of multiplication.

6. E: 120 - To find 5/7 of 168 members, multiply: (5/7) × 168. Divide 168 by 7 first: 168 ÷ 7 = 24. Then multiply by 5: 24 × 5 = 120 members attended.

7. B: 35 - Follow order of operations (PEMDAS). Multiply first: 17 × 6 = 102. Then work left to right: 127 − 102 = 25, then 25 + 10 = 35. Multiplication must be done before addition and subtraction.

8. D: 1/6 - Multiples of 6 from 1 to 30 are: 6, 12, 18, 24, 30 (that's 5 numbers out of 30 possible outcomes). Probability = 5/30. Simplify by dividing both by 5: 5/30 = 1/6. Count favorable outcomes over total possible outcomes.

9. A: 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. C: 37 - The radius of a circle is half the diameter. If diameter = 74, then radius = 74 ÷ 2 = 37. Remember: diameter goes all the way across, radius goes from center to edge.

11. E: 7 - Solve 21y + 38 = 185 in two steps. Subtract 38 from both sides: 21y = 147. Divide both sides by 21: y = 7. Check: 21(7) + 38 = 147 + 38 = 185 ✓

12. B: $540 - Calculate 25% off of $720. Method 1: Find discount: 0.25 × $720 = $180, then subtract: $720 − $180 = $540. Method 2: If 25% off, you pay 75%: 0.75 × $720 = $540.

13. D: 201 - Calculate each exponent first, then subtract. $35^2 = 35 \times 35 = 1225$. Then $32^2 = 32 \times 32 = 1024$. Finally subtract: 1225 − 1024 = 201. Exponents must be calculated before subtraction.

14. A: 195 - The compound inequality $v > 195$ and $v < 200$ means v must be greater than 195 AND less than 200. This is a "could NOT" question. 195 does NOT satisfy $v > 195$ (195 is not greater than 195; it's equal). All other choices fall between 195 and 200.

15. C: 36 - Set up a proportion: 22 cups/33 servings = x cups/54 servings. Cross-multiply: $22 \times 54 = 33 \times x$, so $1188 = 33x$. Divide: $x = 36$ cups. Or find cups per serving: $22/33 = 2/3$ cup per serving, so $54 \times (2/3) = 36$ cups.

16. E: 8/37 - When subtracting fractions with the same denominator, keep the denominator and subtract numerators: $29/37 - 21/37 = (29 - 21)/37 = 8/37$. The denominator stays 37; only subtract the numerators.

17. B: 23,700 - When rounding to the nearest hundred, look at the tens digit. In 23,672, the tens digit is 7. Since $7 \geq 5$, round up: increase the hundreds digit from 6 to 7, making 23,700.

18. D: 60 - The LCM is the smallest number both numbers divide into evenly. List multiples: 20: 20, 40, 60, 80... and 30: 30, 60, 90... The first common multiple is 60. Verify: $60 \div 20 = 3$ ✓ and $60 \div 30 = 2$ ✓

19. A: 1296 - Examine the pattern: 16 to 48 is ×3, 48 to 144 is ×3, 144 to 432 is ×3. Each number triples. This is a geometric sequence with ratio 3. Next number: $432 \times 3 = 1296$.

20. C: 693 - Area of a triangle = (base × height) ÷ 2 = $(42 \times 33) \div 2 = 1386 \div 2 = 693$ 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. E: 253 - To find 92% of 275, multiply: $0.92 \times 275 = 253$. Mental math: 100% of 275 is 275, so 92% is 275 − (8% of 275) = 275 − 22 = 253.

22. B: 13 - Solve $33 \times m = 429$ by dividing both sides by 33: $m = 429 \div 33 = 13$. Check: $33 \times 13 = 429$ ✓ Think "33 times what equals 429?"

23. D: 99 - Work backwards from the result. If the result is 24 after adding 15, then before adding the value was $24 - 15 = 9$. If dividing by 11 gave 9, the original number was $9 \times 11 = 99$. Check: $99 \div 11 = 9$, then $9 + 15 = 24$ ✓

24. A: 40 - The ratio 8:5 means for every 8 tennis balls, there are 5 baseballs. If there are 64 tennis balls, find how many groups of 8: $64 \div 8 = 8$ groups. Each group has 5 baseballs, so total baseballs = $8 \times 5 = 40$. Or proportion: $8/5 = 64/x$, cross multiply: $8x = 320$, so $x = 40$.

25. C: 211 - Follow order of operations. Calculate the exponent first: $13^2 = 169$. Then work left to right: $65 + 169 = 234$, then $234 - 23 = 211$. Exponents are calculated before addition and subtraction.

Reading

1. C: live up to nine months - The passage explains: "But the generation born in late summer is different—these 'super generation' butterflies live up to nine months." This extended lifespan is what makes them special, allowing them to complete the migration south.

2. A: the sun and Earth's magnetic field - The passage states: "They use the sun as a compass, adjusting their flight path throughout the day as the sun moves across the sky. They also appear to sense Earth's magnetic field, which helps them maintain direction even on cloudy days." Both navigation methods are mentioned.

3. E: habitat loss and pesticide use - The passage notes: "Habitat loss, pesticide use, and climate change threaten both their breeding grounds in North America and their winter sanctuaries in Mexico." These are identified as the primary threats.

4. B: 3,000 miles - The opening sentence states: "Each fall, millions of monarchs travel up to 3,000 miles from Canada and the northern United States to specific mountain forests in central Mexico." The distance is clearly specified.

5. D: milkweed plants - The passage explains: "The milkweed plants that monarch caterpillars depend on are disappearing as agricultural practices change." Milkweed is their essential food source.

6. C: their father's deportation - The narrator describes: "My essay. The one about Dad's deportation. The one I'd almost deleted a dozen times because writing it hurt too much." The essay's topic is clearly stated.

7. A: secret - The passage notes: "For months, I'd kept my writing secret—the essays about being the daughter of an undocumented immigrant." The narrator explicitly kept it hidden.

8. E: fifteen years - The narrator mentions: "her English still uncertain after fifteen years in this country." The duration is specified.

9. B: angry - The narrator asks: "'You wrote about Papi?' I nodded, suddenly afraid. 'Are you angry?'" The narrator feared Mom's anger.

10. D: continue writing without fear - The passage concludes: "That afternoon, I started writing again—this time without fear." The narrator decides to keep writing, now openly.

11. C: 80°F - The passage states: "The ocean temperature must be at least 80°F (27°C) to provide enough heat and moisture." This minimum temperature is clearly given.

12. A: calm conditions and clear skies - The passage describes: "At the center lies the eye, a calm area with clear skies and light winds." These are the eye's defining characteristics.

13. E: abnormal rise in sea level - The passage defines storm surge as: "the abnormal rise in sea level caused by the hurricane pushing ocean water toward shore." This definition is explicit.

14. B: wind speed - The passage explains: "Hurricanes are classified by wind speed using the Saffir-Simpson scale, ranging from Category 1 (74-95 mph winds) to Category 5 (157+ mph winds)." Wind speed is the classification basis.

15. D: more intense hurricanes - The passage concludes: "While the total number of hurricanes may not increase, scientists predict that a higher percentage will reach Category 4 or 5 strength." Greater intensity is predicted.

16. C: 79 CE - The opening sentence states: "On August 24, 79 CE, Mount Vesuvius erupted with tremendous force, burying Pompeii under volcanic ash and pumice." The date is clearly specified.

17. A: pouring plaster into hollow spaces left by decomposed bodies - The passage explains: "archaeologists discovered they could pour plaster into these body-shaped hollows, creating haunting casts that capture people's final moments." The process is described.

18. E: fast-food restaurants - The passage identifies: "We see fast-food restaurants (thermopolia) where ordinary Romans bought meals." Their function is explained.

19. B: volcanic ash sealed it - The passage notes: "On August 24, 79 CE, Mount Vesuvius erupted with tremendous force, burying Pompeii under volcanic ash and pumice...but it also perfectly preserved the city, creating an archaeological treasure trove." The ash preserved it.

20. D: exposure, tourists, and inadequate maintenance - The passage explains: "Exposure to air, water, and millions of tourists causes ongoing deterioration. Inadequate maintenance and funding have led to collapses of ancient structures." Multiple threats are listed.

21. C: a debate competition - The opening line states: "Standing before the mirror, reciting to my dog, mumbling through it during lunch. But now, waiting backstage for the debate finals." The event is clearly identified.

22. A: unable to remember their speech - The narrator says: "'I can't remember anything,' I said. 'Not one word. My mind is completely blank.'" Complete memory loss occurred.

23. E: trust themselves and just talk - Jamie advises: "'Then don't remember,' Jamie said. 'Just talk. You know this topic inside and out. Trust yourself.'" The advice emphasizes trust and authenticity.

24. B: authentic and passionate - The passage describes: "My response wasn't elegant, but it was real—filled with the passion I'd forgotten I had." Authenticity characterized the actual speech.

25. D: authentic voice and genuine conviction - The ending notes: "when they announced our team had won, the judges commented on my 'authentic voice' and 'genuine conviction.'" These were the judges' specific praises.

26. C: bacteria with resistance mutations survive and multiply - The passage explains: "When bacteria are exposed to antibiotics, most die—but occasionally, random genetic mutations make some bacteria resistant. These survivors multiply, passing resistance to their offspring." This is the resistance mechanism.

27. A: viruses - The passage states: "When people take antibiotics for viral infections (which antibiotics can't treat), stop treatment early, or take antibiotics prescribed to others, they create ideal conditions for resistance to develop." Antibiotics don't work on viruses.

28. E: creating resistant bacteria that spread to humans - The passage notes: "In agriculture, antibiotics given to healthy livestock to promote growth also contribute to resistance. Resistant bacteria can spread from animals to humans through food, water, or direct contact." The connection is explained.

29. B: infections can't be prevented or treated - The passage explains: "Without effective antibiotics, routine surgeries, cancer chemotherapy, and organ transplants become extremely dangerous because we can't prevent or treat the infections they cause." Infection control becomes impossible.

30. D: viruses that kill bacteria - The passage defines: "Bacteriophages—viruses that kill bacteria—might treat some infections." This alternative treatment is explained.

31. C: Stanford - The opening line states: "The college acceptance letter felt heavy in my hands. Stanford. Full ride. Computer Science." Stanford is explicitly named.

32. A: stage four pancreatic cancer - The passage reveals: "A letter from Dad's oncologist. Stage four pancreatic cancer. Aggressive treatment starting immediately." The diagnosis is clearly stated.

33. E: attending community college to stay near family - The narrator says: "'I'm thinking about community college instead,' I said quietly. 'Just for the first year. Maybe two.'" This was the initial alternative considered.

34. B: mean the cancer took more than it deserved - The father argues: "But you throwing away your dreams? That doesn't help me. It just means the cancer took more than it deserved." He sees staying as letting cancer win more.

35. D: two years - The passage notes: "He lived another two years—long enough to see me declared my major, make dean's list, land an internship." The duration is specified.

36. C: luciferin and luciferase - The passage states: "most bioluminescence involves a chemical reaction between a light-emitting molecule (luciferin) and an enzyme (luciferase)." These two substances are named.

37. A: 90% - The passage notes: "Scientists estimate that 90% of deep-sea organisms produce light." This high percentage is clearly stated.

38. E: courtship - The passage explains: "On land, fireflies use bioluminescence for courtship. Males flash specific patterns while flying; if a female of the same species likes what she sees, she flashes back from the ground." Courtship is the primary purpose.

39. B: disturbed - The passage describes: "dinoflagellates—single-celled organisms—produce light when disturbed. Swimming, kayaking, or even walking through shallow water creates glowing blue-green trails." Disturbance triggers their light.

40. D: track and visualize cells - The passage concludes: "The genes responsible for bioluminescence have been inserted into other organisms, making cells glow so researchers can track them. Glowing proteins help visualize cancer cells, track how diseases spread, or monitor how well treatments work." Tracking and visualization are the applications.

Verbal

1. D: agile - Nimble and agile both mean quick and light in movement, able to move easily. "A nimble dancer" and "an agile athlete" describe the same graceful quickness. Both indicate ease of movement.

2. B: rowdy - Boisterous and rowdy both mean noisy, energetic, and cheerful, lively. "Boisterous laughter" and "rowdy behavior" describe the same exuberant energy. Both indicate loud, spirited activity.

3. A: concise - Terse and concise both mean using few words, brief. "A terse reply" and "a concise statement" both communicate efficiently. Both indicate brevity in expression.

4. E: spotless - Immaculate and spotless both mean perfectly clean, without flaws. "An immaculate room" and "a spotless kitchen" describe the same perfect cleanliness. Both indicate absence of dirt or defects.

5. C: calm - Placid and calm both mean peaceful, not easily upset or excited. "A placid lake" and "calm waters" describe the same undisturbed state. Both indicate tranquility.

6. D: useless - Futile and useless both mean incapable of producing any useful result, pointless. "A futile attempt" and "a useless effort" describe actions that accomplish nothing. Both indicate lack of effectiveness.

7. B: secret - Covert and secret both mean not openly acknowledged or displayed, hidden. "Covert operations" and "secret missions" describe the same concealed activities. Both indicate hiddenness.

8. A: tolerant - Lenient and tolerant both mean permissive, not strict. "A lenient teacher" and "a tolerant approach" describe the same forgiving attitude. Both indicate mercy or flexibility.

9. E: incompetent - Inept and incompetent both mean having or showing no skill, clumsy. "An inept attempt" and "incompetent work" describe the same lack of ability. Both indicate lack of skill.

10. C: threatening - Ominous and threatening both mean giving the impression that something bad will happen, menacing. "Ominous clouds" and "threatening skies" suggest the same impending danger. Both indicate foreboding.

11. D: brave - Valiant and brave both mean showing courage, heroic. "A valiant warrior" and "a brave soldier" describe the same fearless character. Both indicate courage.

12. B: average - Mediocre and average both mean of only moderate quality, ordinary. "Mediocre performance" and "average results" describe the same unremarkable outcomes. Both indicate lack of excellence.

13. A: fanatic - Zealot and fanatic both mean a person who is fanatical and uncompromising. "A religious zealot" and "a political fanatic" describe the same extreme devotion. Both indicate excessive enthusiasm.

14. E: boring - Tedious and boring both mean too long, slow, or dull, tiresome. "A tedious lecture" and "a boring presentation" cause the same weariness. Both indicate lack of interest.

15. C: hidden - Latent and hidden both mean existing but not yet developed or manifest, dormant. "Latent talent" and "hidden potential" describe abilities not yet visible. Both indicate concealed existence.

16. D: thrifty - Frugal and thrifty both mean sparing or economical with money or food, careful with resources. "Frugal spending" and "thrifty habits" describe the same careful use. Both indicate economy.

17. B: peaceful - Serene and peaceful both mean calm and untroubled, tranquil. "A serene expression" and "a peaceful demeanor" show the same calmness. Both indicate tranquility.

18. A: ill will - Malice and ill will both mean the intention to do evil or harm, spite. "Acting with malice" and "showing ill will" describe the same hostile intent. Both indicate harmful intention.

19. E: cautious - Wary and cautious both mean feeling or showing caution, careful. "Wary of strangers" and "cautious around danger" describe the same careful attitude. Both indicate carefulness.

20. C: constant - Incessant and constant both mean continuing without pause or interruption, unceasing. "Incessant noise" and "constant chatter" describe the same unending sound. Both indicate continuity.

21. D: difficult - Arduous and difficult both mean involving or requiring strenuous effort, hard. "An arduous journey" and "a difficult climb" describe the same challenging experience. Both indicate hardship.

22. B: profitable - Lucrative and profitable both mean producing a great deal of profit, money-making. "A lucrative business" and "a profitable venture" both generate significant income. Both indicate financial gain.

23. A: temporary - Transient and temporary both mean lasting only for a short time, brief. "A transient condition" and "a temporary situation" both end quickly. Both indicate impermanence.

24. E: wordy - Verbose and wordy both mean using more words than needed, long-winded. "A verbose speech" and "wordy writing" both contain excessive language. Both indicate excessive words.

25. C: honesty - Candor and honesty both mean the quality of being open and honest, frankness. "Speaking with candor" and "showing honesty" both demonstrate truthfulness. Both indicate openness.

26. D: gloomy - Somber and gloomy both mean dark or dull, melancholy. "A somber mood" and "a gloomy atmosphere" describe the same sad feeling. Both indicate darkness or sadness.

27. B: ordinary - Mundane and ordinary both mean lacking interest or excitement, commonplace. "Mundane tasks" and "ordinary chores" describe the same routine activities. Both indicate lack of excitement.

28. A: kind - Benevolent and kind both mean well meaning and kindly, generous. "A benevolent donor" and "a kind benefactor" show the same goodwill. Both indicate goodness.

29. E: improve - Enhance and improve both mean increase or intensify, make better. "To enhance quality" and "to improve performance" mean making things better. Both indicate betterment.

30. C: dislike - Aversion and dislike both mean a strong feeling of not liking something. "An aversion to crowds" and "a dislike of noise" express the same negative feeling. Both indicate distaste.

31. B: famine is to food - Relationship: Crisis defined by lack to what is lacking. A drought is a severe lack of rain, just as a famine is a severe lack of food. Both show crisis conditions defined by scarcity.

32. D: composer is to symphony - Relationship: Creator to major work created. An architect designs a building, just as a composer creates a symphony. Both show artists and their significant creations.

33. A: trickle is to gush - Relationship: Mild/gentle action to intense/forceful version. A whisper is quiet speech while a shout is loud speech, just as trickle is slow flow while gush is rapid flow. Both show intensity contrasts.

34. C: larva is to butterfly - Relationship: Immature form to adult form. A tadpole develops into a frog, just as a larva develops into a butterfly. Both show developmental transformations.

35. E: speedometer is to speed - Relationship: Measuring instrument to what it measures. A thermometer measures temperature, just as a speedometer measures speed. Both show devices paired with their measured quantities.

36. B: pupil is to eye - Relationship: Opening that admits light to optical structure. A lens admits light to a camera, just as a pupil admits light to an eye. Both show light-admitting components.

37. D: practice is to game - Relationship: Preparation activity to main event. A rehearsal prepares for a play, just as practice prepares for a game. Both show preparatory activities before actual events.

38. A: bay is to water - Relationship: Geographic feature partially surrounded by element to that element. A peninsula is land partially surrounded by water, just as a bay is water partially surrounded by land. Both show partial enclosure relationships (reversed).

39. C: chisel is to sculptor - Relationship: Primary hand tool to artisan. A scalpel is a surgeon's primary cutting tool, just as a chisel is a sculptor's primary carving tool. Both show professionals and their characteristic instruments.

40. E: flood is to soaked - Relationship: Weather event to resulting moisture condition. A drought results in arid conditions, just as a flood results in soaked conditions. Both show weather phenomena and their effects.

41. B: meek is to assertive - Relationship: Opposite personality traits. Timid and bold are opposite traits, just as meek and assertive are opposite traits. Both pairs show contrasting characteristics.

42. D: director is to film - Relationship: Leader/coordinator to ensemble they guide. A conductor leads an orchestra, just as a director leads a film production. Both show leaders and their groups.

43. A: introduction is to book - Relationship: Opening section to complete work. A preamble opens a document, just as an introduction opens a book. Both show beginning sections.

44. C: potter is to clay - Relationship: Artist to raw material they shape. A sculptor works with marble, just as a potter works with clay. Both show artisans and their primary materials.

45. E: visible is to invisible - Relationship: Opposite properties regarding light passage or visibility. Transparent and opaque are opposite regarding light passage, just as visible and invisible are opposite regarding ability to be seen. Both show contrasts in visibility.

46. B: peak is to wave - Relationship: Highest point to formation. A summit is the highest point of a mountain, just as a peak is the highest point of a wave. Both show highest points of structures.

47. D: estivation is to summer - Relationship: Seasonal dormancy to season when it occurs. Hibernation is dormancy during winter, just as estivation is dormancy during summer. Both show sleep states and their seasons.

48. A: edit is to manuscript - Relationship: Action of selective removal/refinement to what is refined. Prune means to trim or cut back a tree, just as edit means to revise or refine a manuscript. Both show improvement through selective removal.

49. C: constellation is to stars - Relationship: Named group to individual elements. An archipelago is a group of islands, just as a constellation is a group of stars. Both show collective terms for grouped elements.

50. E: chaos is to order - Relationship: Opposite states of organization (sound vs. general). Cacophony is harsh, discordant sound (opposite of harmony), just as chaos is disorder (opposite of order). Both show disorder versus order.

51. B: diurnal is to day - Relationship: Activity pattern to time period. Nocturnal means active at night, just as diurnal means active during day. Both show temporal activity patterns.

52. D: hero is to villain - Relationship: Opposing character roles in narrative. A protagonist is the main character opposed by an antagonist, just as a hero is opposed by a villain. Both show opposing narrative roles.

53. A: scarcity is to plenty - Relationship: Opposite conditions of availability. Famine is severe scarcity opposite to abundance, just as scarcity is opposite to plenty. Both show lack versus abundance.

54. C: prism is to refract - Relationship: Optical device to what it does to light. A lens magnifies by bending light, just as a prism refracts by splitting light. Both show optical effects.

55. E: satiate is to appetite - Relationship: Action that satisfies to what is satisfied. Quench satisfies thirst, just as satiate satisfies appetite. Both show satisfaction of needs.

56. B: bouquet is to flower - Relationship: Arranged collection to individual elements. An archipelago is a group of islands, just as a bouquet is an arrangement of flowers. Both show collections of individual items.

57. D: preface is to epilogue - Relationship: Opening section to closing section. A preamble opens while a conclusion closes, just as a preface opens while an epilogue closes. Both show beginning and ending elements.

58. A: shrink is to expand - Relationship: Opposite actions of size change. Diminish means to decrease while increase means to grow, just as shrink is opposite to expand. Both show contrasting size changes.

59. C: herbivore is to vegetation - Relationship: Organism type to food source. A carnivore eats meat, just as an herbivore eats vegetation. Both show dietary classifications and foods.

60. E: detain is to confine - Relationship: Synonymous actions of restriction. Quarantine means to isolate, just as detain means to confine. Both pairs show synonymous restrictive actions.

Quantitative

1. A: 14 - Divide 476 by 34: $476 \div 34 = 14$. This is a division fact from the 34 times table. Check: $34 \times 14 = 476$ ✓ Knowing multiplication facts helps solve division problems quickly.

2. C: 96 - Solve $w + 73 = 169$ by subtracting 73 from both sides: $w = 169 - 73 = 96$. Check: $96 + 73 = 169$ ✓ To undo addition, use subtraction.

3. E: 133 - The sequence adds 21 each time. 1st: 28. 2nd: $28 + 21 = 49$. 3rd: $49 + 21 = 70$. 4th: $70 + 21 = 91$. 5th: $91 + 21 = 112$. 6th: $112 + 21 = 133$. This is an arithmetic sequence with common difference 21.

4. B: 777 - Area of a rectangle = length × width = 37 × 21 = 777 square units. Don't confuse with perimeter, which would be 2(37 + 21) = 116. Area measures the space inside.

5. D: 13 - Solve 32x = 416 by dividing both sides by 32: x = 416 ÷ 32 = 13. Check: 32 × 13 = 416 ✓ Division is the inverse of multiplication.

6. A: 140 - To find 7/9 of 180 books, multiply: (7/9) × 180. Divide 180 by 9 first: 180 ÷ 9 = 20. Then multiply by 7: 20 × 7 = 140 fiction books.

7. C: 23 - Follow order of operations (PEMDAS). Multiply first: 18 × 7 = 126. Then work left to right: 138 − 126 = 12, then 12 + 11 = 23. Multiplication must be done before addition and subtraction.

8. E: 1/4 - Total marbles: 7 green + 9 yellow + 12 red = 28 marbles. Probability of green = green marbles/total marbles = 7/28. Simplify by dividing both by 7: 7/28 = 1/4. Count favorable outcomes over total possible outcomes.

9. B: 19/20 - Convert 0.95 to a fraction: 0.95 = 95/100. Simplify by dividing both numerator and denominator by 5: 95 ÷ 5 = 19 and 100 ÷ 5 = 20, giving 19/20. Check: 19 ÷ 20 = 0.95 ✓

10. D: 66 - The diameter of a circle is twice the radius. If radius = 33, then diameter = 2 × 33 = 66. Remember: diameter goes all the way across through the center, radius goes from center to edge.

11. A: 7 - Solve 23y + 41 = 202 in two steps. Subtract 41 from both sides: 23y = 161. Divide both sides by 23: y = 7. Check: 23(7) + 41 = 161 + 41 = 202 ✓

12. C: $520 - Calculate 35% off of $800. Method 1: Find discount: 0.35 × $800 = $280, then subtract: $800 − $280 = $520. Method 2: If 35% off, you pay 65%: 0.65 × $800 = $520.

13. E: 213 - Calculate each exponent first, then subtract. $37^2 = 37 \times 37 = 1369$. Then $34^2 = 34 \times 34 = 1156$. Finally subtract: 1369 − 1156 = 213. Exponents must be calculated before subtraction.

14. B: 205 - The compound inequality z > 205 and z < 210 means z must be greater than 205 AND less than 210. This is a "could NOT" question. 205 does NOT satisfy z > 205 (205 is not greater than 205; it's equal). All other choices fall between 205 and 210.

15. D: 40 - Set up a proportion: 24 oz/36 cookies = x oz/60 cookies. Cross-multiply: 24 × 60 = 36 × x, so 1440 = 36x. Divide: x = 40 ounces. Or find oz per cookie: 24/36 = 2/3 oz per cookie, so 60 × (2/3) = 40 oz.

16. A: 8/41 - When subtracting fractions with the same denominator, keep the denominator and subtract numerators: 31/41 − 23/41 = (31 − 23)/41 = 8/41. The denominator stays 41; only subtract the numerators.

17. C: 25,800 - When rounding to the nearest hundred, look at the tens digit. In 25,783, the tens digit is 8. Since 8 ≥ 5, round up: increase the hundreds digit from 7 to 8, making 25,800.

18. E: 72 - The LCM is the smallest number both numbers divide into evenly. List multiples: 24: 24, 48, 72, 96... and 36: 36, 72, 108... The first common multiple is 72. Verify: 72 ÷ 24 = 3 ✓ and 72 ÷ 36 = 2 ✓

19. B: 1458 - Examine the pattern: 18 to 54 is ×3, 54 to 162 is ×3, 162 to 486 is ×3. Each number triples. This is a geometric sequence with ratio 3. Next number: 486 × 3 = 1458.

20. D: 770 - Area of a triangle = (base × height) ÷ 2 = (44 × 35) ÷ 2 = 1540 ÷ 2 = 770 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. A: 258 - To find 86% of 300, multiply: 0.86 × 300 = 258. Mental math: 100% of 300 is 300, so 86% is slightly less: 0.86 × 300 = 258.

22. C: 13 - Solve 35 × k = 455 by dividing both sides by 35: k = 455 ÷ 35 = 13. Check: 35 × 13 = 455 ✓ Think "35 times what equals 455?"

23. E: 8 - Work backwards or set up an equation. Let n be the number: (n × 17) − 29 = 107. So 17n − 29 = 107. Add 29: 17n = 136. Divide by 17: n = 8. Check: 8 × 17 = 136, then 136 − 29 = 107 ✓

24. B: 32 - The ratio 9:4 means for every 9 footballs, there are 4 soccer balls. If there are 72 footballs, find how many groups of 9: 72 ÷ 9 = 8 groups. Each group has 4 soccer balls, so total soccer balls = 8 × 4 = 32. Or proportion: 9/4 = 72/x, cross multiply: 9x = 288, so x = 32.

25. D: 241 - Follow order of operations. Calculate the exponent first: $14^2 = 196$. Then work left to right: 70 + 196 = 266, then 266 − 25 = 241. Exponents are calculated before addition and subtraction.