

SIMULATION EXAM 12 (75 QUESTIONS)

SESSION A: READING — NARRATIVE TEXT

Read the following selection and answer questions 1–12.

The Treehouse

Mia had not expected to find the treehouse. She had wandered out behind her grandparents' barn to chase a butterfly, and there it sat, half-hidden in the branches of an old maple, leaning slightly to one side.

She called for her brother Theo, who came running. They stood at the bottom of the tree and looked up. Most of the roof boards were missing, and the ladder had only three rungs left, but the little square house was still up there.

"Grandpa built that," their grandmother said when they came inside for lunch. "For your dad and his sister, when they were about your ages. Nobody has been up there in twenty years."

Mia and Theo decided, in that quiet way that siblings sometimes agree without speaking, that they would fix it.

The next morning, they pulled on old work gloves from the shed and began. Theo, who was thirteen and tall, pulled the broken rungs off the ladder. Mia, who was eleven and good with her hands, sorted through the scrap pile behind the barn for boards the right size. Their grandfather, watching from the porch with his coffee, only smiled.

It was harder than they had thought. The nails were stubborn. The boards needed to be cut. The hammer was heavy in Mia's small hand by the end of the first hour. But Theo did not laugh at her, and she did not

get angry at him for taking too long with the measurements. They worked together in a way they almost never did at home, where they fought about the bathroom and the remote.

By the end of the week, the ladder was fixed and the roof was patched. They climbed up together for the first time and sat side by side, looking out at the fields through the open doorway.

"Do you think Dad sat up here too?" Mia asked.

"Probably right where you are," Theo said.

Mia leaned back against the wall. The wood smelled warm and old, like a place that remembered something. For the first time in a long time, she did not want to go back inside.

1. Where did Mia first see the treehouse?
 - A. From the porch of her grandparents' house
 - B. From the upstairs window of the barn
 - C. From the road behind her grandparents' farm
 - D. Behind the barn, while she was chasing a butterfly

2. Who originally built the treehouse?
 - A. Mia and Theo's father, many years before they were born
 - B. Their grandfather, for their dad and his sister
 - C. Their grandmother, before she moved into the farmhouse
 - D. A neighbour, who later moved away from the area

3. How long had it been since anyone had used the treehouse?

- A. About five years
- B. About ten years
- C. About twenty years
- D. About fifty years

4. How did Mia and Theo decide that they would fix the treehouse?

- A. Quietly, without even speaking about it out loud
- B. After a long argument that lasted most of the morning
- C. After their grandfather asked them to do it for him
- D. After their grandmother made them promise to try

5. What was Theo's main job on the first morning?

- A. Cutting new boards from the scrap pile behind the barn
- B. Sorting through tools in the shed by the back door
- C. Pulling the broken rungs off the old wooden ladder
- D. Climbing into the tree to inspect the damaged roof

6. What was Mia's main job on the first morning?

- A. Holding the ladder steady while Theo climbed up
- B. Carrying water and snacks up into the treehouse
- C. Painting the outside of the treehouse a fresh colour
- D. Sorting through the scrap pile for boards the right size

7. How did Mia and Theo's grandfather react to the project?

- A. He gave them detailed instructions every morning
- B. He watched from the porch with his coffee and only smiled
- C. He came outside to help them with the difficult cutting
- D. He warned them several times that the tree was not safe

8. How was the way Mia and Theo worked together DIFFERENT from how they usually got along?

- A. They worked together patiently, without fighting the way they did at home
- B. They argued with each other more than they normally did at home
- C. They each worked on different parts and never spoke to each other
- D. They needed an adult nearby to help them stay focused on the task

9. About how long did it take Mia and Theo to fix the ladder and patch the roof?

- A. One single morning
- B. About three days
- C. About one week
- D. The whole summer holiday

10. What did Mia ask Theo when they sat in the treehouse together for the first time?

- A. Whether their grandparents had ever been up there together
- B. Whether their father had sat in the same spot when he was young
- C. Whether they should paint the inside walls a bright colour
- D. Whether they could bring their friends to see the treehouse next time

After many minutes of this rubbing, the cloud begins to act like a giant battery. The top of the cloud collects a positive charge, and the bottom collects a negative charge. The ground beneath the cloud begins to collect a positive charge in response. When the difference in charge between the cloud and the ground becomes strong enough, the air can no longer hold it apart. Electricity jumps suddenly through the air in a giant spark. That spark is lightning.

The flash of light we see is actually the air itself glowing as the electricity rushes through it. The air along the path of the bolt heats up to about thirty thousand degrees Celsius, which is more than five times hotter than the surface of the Sun. That sudden heat makes the air expand so quickly that it creates a powerful shock wave, and the shock wave is what we hear as thunder.

Because light travels much faster than sound, we see the flash first and hear the thunder a few seconds later. Counting the seconds between the flash and the boom can tell you roughly how far away the lightning is — every three seconds is about one kilometre.

Lightning is dramatic, but it is also useful. Every flash adds small amounts of nitrogen to the soil, which helps plants grow. From a single spark in the sky, the whole world gains a little.

13. What is the MAIN IDEA of the passage?

- A. Lightning forms through a chain of small steps inside a thunderstorm cloud
- B. Lightning is dangerous and should always be avoided during a thunderstorm
- C. Scientists have only recently learned how to predict lightning strikes
- D. Lightning is mainly responsible for starting forest fires every summer

14. According to the passage, what creates electrical charges inside a storm cloud?

- A. The sound of thunder shaking the cloud from inside
- B. Heat from the Sun warming the top layer of the cloud
- C. Rain drops sliding down the outside of the cloud
- D. Small ice pieces and large ice pieces bumping against each other

15. According to the passage, how hot is the air along the path of a lightning bolt?

- A. About 100 degrees Celsius
- B. About 1,000 degrees Celsius
- C. About 30,000 degrees Celsius
- D. About 100,000 degrees Celsius

16. According to the passage, what causes the sound of thunder?

- A. Two clouds bumping together high in the sky
- B. Hot air expanding suddenly along the lightning bolt's path
- C. Pieces of ice cracking against each other inside the cloud
- D. Electricity moving from the ground up into the cloud

17. According to the passage, lightning helps the world by:

- A. Adding small amounts of nitrogen to the soil for plants
- B. Heating the lower atmosphere during the cold winter months
- C. Producing oxygen that plants and animals need to live
- D. Breaking apart pollution particles in the upper atmosphere

18. OPEN-RESPONSE

In your own words, explain how lightning forms inside a thunderstorm cloud. Use at least TWO details from the passage in your explanation.

SESSION C: WRITING — CONVENTIONS & COMPOSITION

19. Which sentence uses the apostrophe correctly to show that ONE dog owns the leash?

- A. The dogs leash was lying near the front door
- B. The dog's leash was lying near the front door
- C. The dogs' leash was lying near the front door
- D. The dogs leash's was lying near the front door

20. Which sentence uses quotation marks correctly?

- A. "Did you finish your homework? Asked Dad.
- B. "Did you finish your homework, asked Dad?"
- C. Did you finish your homework? "Asked Dad."
- D. "Did you finish your homework?" asked Dad.

21. Which word in this sentence is an ADVERB?

"The athlete ran swiftly across the finish line."

- A. Swiftly
- B. Athlete
- C. Across
- D. Line

22. Which sentence uses verb tenses CORRECTLY and consistently?

- A. Last Saturday, we go to the museum and saw a dinosaur exhibit

- B. Yesterday, the team plays a game and wins by two points
- C. This morning, I walked to school and met my friend at the gate
- D. Tomorrow, we visited the new library after lunch was over

23. Which sentence shows correct SUBJECT-VERB AGREEMENT?

- A. The girl in the green jacket are walking to the park
- B. Each of the students are bringing their own lunch today
- C. Neither of the cookies were left on the table after lunch
- D. One of the students is helping the new teacher this afternoon

24. Which sentence uses CAPITALIZATION correctly?

- A. last summer, my family visited niagara falls in ontario
- B. Last summer, my family visited Niagara Falls in Ontario
- C. Last Summer, my Family visited Niagara falls in ontario
- D. last Summer, my family visited Niagara Falls in ontario

25. Which sentence is written in the PASSIVE voice?

- A. The window was broken by the careless boy
- B. The careless boy broke the window in the gym
- C. The boy carelessly broke the window with a ball
- D. The boy broke the window with his elbow yesterday

26. Which is the BEST way to combine these two sentences?

"Aiden loves to read. Aiden goes to the library every Saturday."

- A. Aiden loves to read, he goes to the library every Saturday
- B. Aiden loves to read but he goes to the library every Saturday
- C. Because Aiden loves to read, he goes to the library every Saturday
- D. Aiden loves to read until he goes to the library every Saturday

27. Which sentence uses a SIMILE?

- A. The athlete trained hard for many months before the race
- B. The athlete ran like a cheetah down the final stretch
- C. The athlete was determined to break the school record
- D. The athlete crossed the finish line with one final push

28. Which sentence uses the word "their" correctly?

- A. The students put they're books on the shelf
- B. The students put there books on the shelf
- C. The students put thair books on the shelf
- D. The students put their books on the shelf

29. Which sentence has CORRECT punctuation?

- A. After the movie ended, we walked home together in the rain
- B. After the movie ended we walked home, together in the rain
- C. After the movie ended, we walked home, together, in the rain
- D. After the movie ended we walked home together in the rain

30. Which sentence uses a CONJUNCTION to join two complete thoughts?

- A. The cake was sweet and delicious at the party
- B. We ate dinner at six o'clock in the kitchen
- C. I wanted to play outside, but it started to rain
- D. The team practised every Wednesday afternoon

31. OPEN-RESPONSE — WRITING PROMPT

If you could create an INVENTION to help your community, what would it be?

Describe your invention and explain how it would help people. Use specific details to make your invention come to life for the reader.

Your writing should:

- Include a clear opening, middle, and closing
- Describe your invention in detail (what it looks like, how it works)
- Explain how the invention would help people in your community
- Use vivid, descriptive language
- Show correct spelling, grammar, and punctuation

D. 5,000,000

33. What is 47×8 ?

A. 320

B. 396

C. 360

D. 376

34. Which fraction is EQUIVALENT to $6/8$?

A. $3/4$

B. $2/3$

C. $4/5$

D. $7/9$

35. Which decimal is EQUIVALENT to $7/10$?

A. 0.07

B. 7.0

C. 0.7

D. 0.007

36. Which of the following decimals is GREATEST?

A. 0.45

B. 0.405

C. 0.045

D. 0.504

37. What is 50% of 86?

A. 43

B. 36

C. 21.5

D. 50

38. What is $4.6 + 2.85$?

A. 6.91

B. 7.45

C. 7.91

D. 6.45

39. What is $432 \div 6$?

A. 62

B. 82

C. 72

D. 76

40. Solve for m in the equation $m + 18 = 50$.

A. 32

B. 28

C. 68

D. 36

41. What is the value of $2x + 3$ when $x = 7$?

A. 12

B. 14

C. 21

D. 17

42. What is the 6th term of this sequence: 5, 10, 15, 20, 25, ____ ?

A. 28

B. 30

C. 35

D. 25

43. Which equation represents "three more than twice a number n equals 17"?

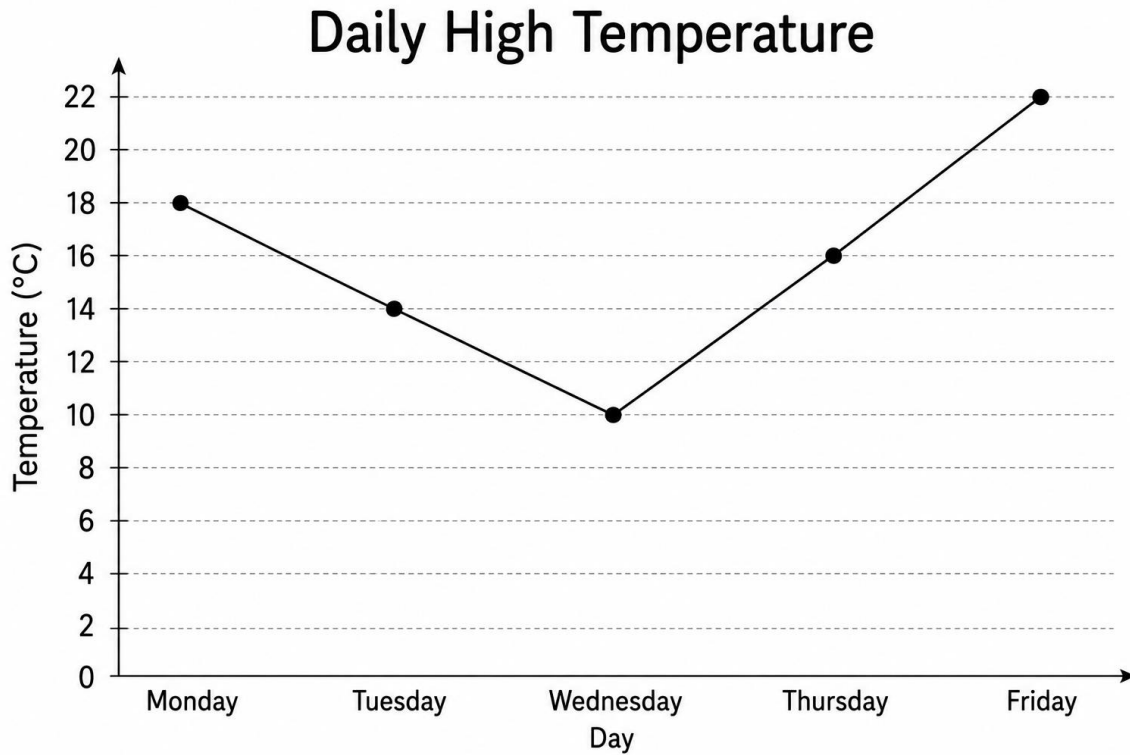
A. $n + 3 = 17$

B. $2n - 3 = 17$

C. $2n + 3 = 17$

D. $n + 2 + 3 = 17$

44. Look at the line graph below showing the daily HIGH temperature in a city for one week.



On which day was the temperature LOWEST?

- A. Wednesday
- B. Tuesday
- C. Monday
- D. Thursday

45. Find the MEAN of these test scores: 78, 84, 90, 76, 82.

- A. 78
- B. 82
- C. 84
- D. 86

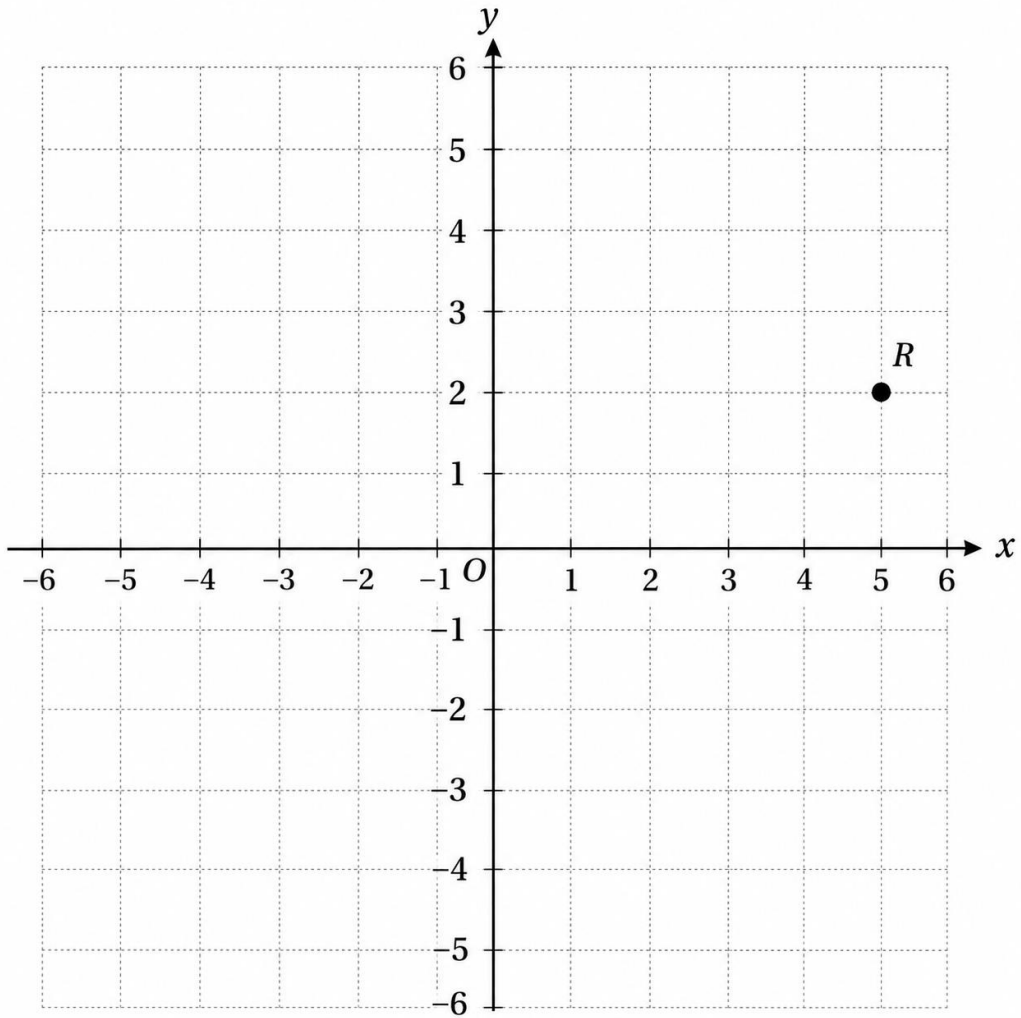
46. A rectangle has a length of 12 cm and a width of 7 cm. What is its PERIMETER?

- A. 84 cm
- B. 19 cm
- C. 30 cm
- D. 38 cm

47. Which angle measure describes an OBTUSE angle?

- A. 45°
- B. 90°
- C. 120°
- D. 180°

48. Look at the coordinate plane below.



What are the COORDINATES of point R?

- A. (5, 2)
- B. (2, 5)
- C. (-5, 2)
- D. (5, -2)

49. How many FACES does a rectangular prism have?

- A. 4
- B. 6

- C. 8
- D. 12

50. Which of the following is the BEST example of a NEED rather than a WANT?

- A. A new video game to play during the weekend
- B. Tickets to a concert happening next month
- C. A pair of designer sunglasses for the summer
- D. Healthy food for breakfast every morning

SESSION D: MATHEMATICS

51. What is $632 + 489$?

- A. 1,111
- B. 1,021
- C. 1,121
- D. 1,221

52. What is $\frac{1}{4} \times 3$?

- A. $\frac{3}{4}$
- B. $\frac{3}{12}$
- C. $\frac{1}{12}$
- D. $\frac{4}{3}$

53. What is 65% written as a fraction in SIMPLEST form?

A. $65/100$

B. $13/20$

C. $6/10$

D. $65/10$

54. What is $8,400 \div 7$?

A. 800

B. 200

C. 12,000

D. 1,200

55. What is 0.5×6 ?

A. 3.0

B. 0.3

C. 30

D. 0.03

56. Which fraction lies BETWEEN $3/8$ and $1/2$?

A. $1/4$

B. $5/8$

C. $7/16$

D. $3/16$

57. A spinner has 8 equal sections: 3 yellow, 2 blue, 2 red, and 1 green. What is the probability of landing on BLUE?

- A. $\frac{3}{8}$
- B. $\frac{2}{8}$
- C. $\frac{1}{8}$
- D. $\frac{4}{8}$

58. Solve for w in the equation $w - 12 = 25$.

- A. 12
- B. 13
- C. 25
- D. 37

59. Which expression represents "a number n divided by 5, then increased by 2"?

- A. $5n + 2$
- B. $(n + 2) \div 5$
- C. $n/5 + 2$
- D. $5(n + 2)$

60. What is the value of $3y - 4$ when $y = 6$?

- A. 14
- B. 18
- C. 22
- D. 10

61. What is the next term in this pattern: 3, 6, 12, 24, ___ ?

- A. 36
- B. 30
- C. 28
- D. 48

62. Look at the pseudocode below:

```
SET total = 50
FOR each number from 1 to 4:
    Subtract 5 from total
Display total
```

What is the FINAL value of total?

- A. 25
- B. 30
- C. 45
- D. 20

63. Find the MEAN of these numbers: 6, 10, 14, 8, 12.

- A. 8
- B. 12
- C. 10
- D. 14

64. Find the MEDIAN of these numbers: 15, 22, 9, 18, 27, 13, 20.

- A. 18
- B. 17
- C. 22
- D. 15

65. Find the RANGE of these temperatures: 23°C, 18°C, 25°C, 15°C, 22°C.

- A. 8°C
- B. 10°C
- C. 12°C
- D. 25°C

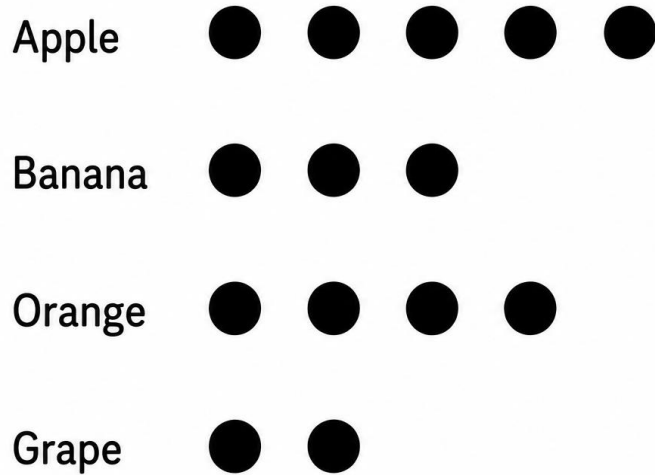
66. A bag has 5 white marbles, 4 black marbles, and 3 red marbles. What is the probability of drawing a marble that is NOT white?

- A. $\frac{5}{12}$
- B. $\frac{4}{12}$
- C. $\frac{3}{12}$
- D. $\frac{7}{12}$

67. Look at the pictograph below showing favourite fruits chosen by a class of Grade 6 students.

Favourite Fruit

Each ● = 4 students.



How many students chose APPLE as their favourite fruit?

- A. 20
- B. 5
- C. 12
- D. 16

68. What is the VOLUME of a cube with a side length of 4 cm?

- A. 12 cm^3
- B. 16 cm^3
- C. 64 cm^3
- D. 48 cm^3

69. A rectangle has a length of 9 cm and a width of 6 cm. What is its AREA?

- A. 15 cm^2
- B. 54 cm^2
- C. 30 cm^2
- D. 18 cm^2

70. A straight angle measures:

- A. 90°
- B. 45°
- C. 360°
- D. 180°

71. How many centimetres are in 2.5 metres?

- A. 2.5 cm
- B. 25 cm
- C. 250 cm
- D. 2,500 cm

72. A point is located at (4, 3). It is REFLECTED across the y-axis. What are its new coordinates?

- A. (-4, 3)
- B. (4, -3)
- C. (-4, -3)
- D. (3, 4)

73. Maya saves \$5 every week from her allowance. How much money will she have saved after 8 weeks?

- A. \$32
- B. \$40
- C. \$45
- D. \$13

74. Lily earns \$30 a week from babysitting. She wants to save 20% of her earnings each week. How much should she save each week?

- A. \$5.00
- B. \$3.00
- C. \$20.00
- D. \$6.00

75. A book costs \$15 before tax. The sales tax adds 10% to the price. What is the TOTAL cost of the book?

- A. \$1.50
- B. \$13.50
- C. \$16.50
- D. \$25.00

ANSWER KEY & DETAILED EXPLANATIONS — SIMULATION EXAM 12

- 1. D** — The opening sentence establishes the setting: "She had wandered out behind her grandparents' barn to chase a butterfly, and there it sat." The butterfly chase behind the barn is the exact context given for the discovery.
- 2. B** — When Mia and Theo describe the treehouse to their grandmother, she explains: "Grandpa built that... For your dad and his sister, when they were about your ages." Both the builder (grandfather) and the intended audience (their dad and his sister) match option B.
- 3. C** — Their grandmother states directly: "Nobody has been up there in twenty years." This is the explicit timeframe given in the passage.
- 4. A** — The passage describes the decision: "Mia and Theo decided, in that quiet way that siblings sometimes agree without speaking, that they would fix it." The silent, unspoken agreement is the defining detail.
- 5. C** — Theo's first task is stated directly: "Theo, who was thirteen and tall, pulled the broken rungs off the ladder." His height and strength match the ladder task he was given.
- 6. D** — Mia's task is described in the same passage: "Mia, who was eleven and good with her hands, sorted through the scrap pile behind the barn for boards the right size." Sorting boards in the scrap pile is her specific job.
- 7. B** — The grandfather's reaction is stated plainly: "Their grandfather, watching from the porch with his coffee, only smiled." The porch, the coffee, and the smile all match option B.
- 8. A** — The contrast is made explicit in the passage: "They worked together in a way they almost never did at home, where they fought about the bathroom and the remote." At the treehouse, they were patient and cooperative instead of arguing.
- 9. C** — The passage states: "By the end of the week, the ladder was fixed and the roof was patched." About one week is the timeframe given for completing both repairs.
- 10. B** — Mia's question to Theo appears in dialogue: "Do you think Dad sat up here too?" She is wondering whether her father once sat in the same spot when he was young.
- 11. D** — The final paragraph closes with Mia leaning against the wall, feeling that the wood "smelled warm and old, like a place that remembered something," and "she did not want to go back inside." These details show a peaceful, lasting connection with the treehouse and the family history it represents.
- 12. OPEN-RESPONSE** — A strong Code 40 response traces Mia's shifting relationship with the treehouse: from accidental discovery to a project shared with her brother to a place that links her to her father's childhood. Code 40 responses cite specific moments (the quiet decision to fix it, the patient

teamwork, sitting side by side at the end, the wood smelling like "a place that remembered something") and explain how the treehouse becomes a connection to family across generations.

13. A — The passage moves step by step through how lightning forms — ice particles bumping, charge separation, the giant spark, the thunder, and even the soil benefit. Option A captures this chain-of-small-steps structure that organizes the entire passage.

14. D — The passage states: "As the small ice pieces rush up and the larger ones tumble down, they bump and rub against each other again and again. This rubbing knocks tiny electrical charges loose." Ice pieces bumping against each other is the explicit source of the charges.

15. C — The passage states: "The air along the path of the bolt heats up to about thirty thousand degrees Celsius, which is more than five times hotter than the surface of the Sun." Thirty thousand degrees Celsius is the figure given.

16. B — The passage explains thunder directly: "That sudden heat makes the air expand so quickly that it creates a powerful shock wave, and the shock wave is what we hear as thunder." Hot air expanding along the bolt's path produces the sound we hear.

17. A — The closing paragraph states: "Every flash adds small amounts of nitrogen to the soil, which helps plants grow." Adding nitrogen to the soil is the specific benefit the passage identifies.

18. OPEN-RESPONSE — A strong Code 40 response describes the chain inside a storm cloud: small water drops are pushed high into the cold upper cloud and freeze; small ice pieces rush up while larger ice pieces fall, and the bumping knocks electrical charges loose; the top of the cloud becomes positive and the bottom negative; when the charge difference becomes too strong, electricity jumps as a giant spark — lightning. Code 40 responses include at least two clear details with passage-supported language.

19. B — The apostrophe before the "s" shows singular possession (one dog owns the leash). Option A omits the apostrophe entirely; C shows plural possession (multiple dogs); D misplaces the apostrophe nonsensically. For one owner whose name does not end in "s," add 's.

20. D — Quotation marks enclose only the spoken words, the question mark belongs inside the quotation marks because it is part of what was asked, and the dialogue tag "asked Dad" stays outside in lowercase. Options A, B, and C either misplace the quotation marks, capitalize the tag, or misplace the question mark.

21. A — An adverb describes how an action is done, often ending in -ly. "Swiftly" describes how the athlete "ran," making it the adverb in the sentence. "Athlete" and "line" are nouns, and "across" is a preposition.

22. C — Verb tense should stay consistent throughout a sentence. Option C uses past tense ("walked" and "met") consistently with the past time marker "this morning." A and B mix present and past tense, and D pairs past tense ("visited") with future time ("Tomorrow").

- 23. D** — A singular subject takes a singular verb. "One" is singular, so it correctly pairs with the singular verb "is." The other options pair singular subjects ("girl," "each," "neither") with plural verbs ("are," "were").
- 24. B** — Proper nouns (specific names of people, places, and landmarks) are capitalized; common nouns are not. Option B correctly capitalizes "Niagara Falls" and "Ontario" but leaves "summer" and "family" lowercase. The other options either fail to capitalize the proper nouns or wrongly capitalize common nouns.
- 25. A** — In the passive voice, the subject receives the action rather than performing it. In option A, the window (subject) was acted upon ("was broken") by the boy. Options B, C, and D are all active voice, with the boy as the doer of the action.
- 26. C** — The two sentences describe a cause-and-effect relationship: loving to read leads to library visits. "Because" correctly signals this causation. Option A is a comma splice, B uses "but" (which signals contrast), and D uses "until" (which signals a time limit).
- 27. B** — A simile compares two unlike things using "like" or "as." Option B uses "like a cheetah" to compare the athlete's running speed to a cheetah's, creating a vivid image. The other options describe the athlete plainly, without any comparison using "like" or "as."
- 28. D** — "Their" is the possessive form of "they," used to show ownership. Option D correctly uses "their books" (the books belonging to the students). Option A uses "they're" (contraction of "they are"), B uses "there" (indicating location), and C uses a misspelling.
- 29. A** — When a dependent clause begins a sentence, a comma should follow it before the main clause. Option A correctly places a comma after "After the movie ended." The other options either omit this introductory comma or add unnecessary commas mid-sentence.
- 30. C** — A coordinating conjunction such as "but," "and," or "or" joins two independent clauses (complete thoughts) when each could stand alone as a sentence. Option C uses "but" to join "I wanted to play outside" and "it started to rain," both complete thoughts. In A, "and" joins two adjectives; B and D have no conjunction.
- 31. OPEN-RESPONSE** — A strong Code 30 or 40 response names a specific invention, describes it with concrete sensory detail (what it looks like, how it works), and explains one clear way it would help people in the community. The strongest responses move beyond a name ("a recycling robot") to mechanism ("the arm sorts items by colour and material into separate bins") and meaningful impact ("so our neighbourhood landfill would shrink each year").
- 32. B** — The digit 5 sits in the hundred thousands place in 4,572,386 (the sixth position from the right). Its value is $5 \times 100,000 = 500,000$. Place value increases by a factor of ten with each position to the left.
- 33. D** — Break the multiplication into easier parts: $40 \times 8 = 320$ and $7 \times 8 = 56$. Add the partial products: $320 + 56 = 376$. Splitting one factor into tens and ones is a reliable mental-math approach.

- 34. A** — Equivalent fractions are created by dividing the numerator and denominator by the same number: $6 \div 2 = 3$ and $8 \div 2 = 4$, giving $3/4$. The other options do not preserve the proportional relationship.
- 35. C** — A fraction with denominator 10 converts directly to a decimal by placing the numerator in the tenths place: $7/10 = 0.7$. Each decimal place to the right of the point represents tenths, hundredths, thousandths, and so on.
- 36. D** — Compare decimals by aligning the decimal points and looking at each place value from left to right. 0.504 has 5 in the tenths place, which is greater than 4 (option A), 4 (option B), and 0 (option C). The largest tenths digit wins.
- 37. A** — 50% means one-half. Half of 86 is 43, since $86 \div 2 = 43$. Converting a percent to a known fraction is often the fastest mental-math method.
- 38. B** — Align the decimals before adding: $4.60 + 2.85 = 7.45$. Writing 4.6 as 4.60 makes the place-value columns line up cleanly for adding.
- 39. C** — Divide 432 by 6 in parts: $6 \times 70 = 420$, and $432 - 420 = 12$. Then $12 \div 6 = 2$, so the quotient is $70 + 2 = 72$. As a check, $6 \times 72 = 432$.
- 40. A** — To isolate m , subtract 18 from both sides: $m = 50 - 18 = 32$. The inverse operation undoes the addition and keeps the equation balanced.
- 41. D** — Substitute $x = 7$ into $2x + 3$: $2(7) + 3 = 14 + 3 = 17$. Order of operations requires multiplication before addition.
- 42. B** — The pattern adds 5 each time: 5, 10, 15, 20, 25, 30. The 6th term is $25 + 5 = 30$. A constant difference identifies the pattern as additive with step 5.
- 43. C** — "Twice a number n " translates to $2n$, "three more than" means $+ 3$, and "equals 17" gives $2n + 3 = 17$. The order matters: "three more than twice n " places the $+3$ after the doubling, not before or grouped with n .
- 44. A** — Reading the line graph, Wednesday's point sits at 10°C , the lowest value on the graph. The other days show 18 (Mon), 14 (Tue), 16 (Thu), and 22 (Fri) — all higher than Wednesday.
- 45. B** — Add the five scores: $78 + 84 + 90 + 76 + 82 = 410$. Divide by the number of values: $410 \div 5 = 82$. The mean is the total divided by the count.
- 46. D** — Perimeter of a rectangle = $2 \times (\text{length} + \text{width}) = 2 \times (12 + 7) = 2 \times 19 = 38$ cm. Doubling the sum of length and width accounts for the two long sides and two short sides.
- 47. C** — An obtuse angle measures more than 90° but less than 180° . Only 120° falls in that range — 45° is acute, 90° is a right angle, and 180° is a straight angle.

- 48. A** — Point R sits 5 units to the right of the y-axis (so $x = 5$) and 2 units above the x-axis (so $y = 2$), giving the coordinates (5, 2). Coordinates are always written in the order (x, y).
- 49. B** — A rectangular prism has 6 faces: top, bottom, front, back, left, and right. The top and bottom are a matching pair, as are the front and back, and the two side faces.
- 50. D** — A NEED is something required for basic survival or health, such as nutritious food. The other options describe WANTS — items that bring enjoyment but are not necessary for life. Distinguishing needs from wants is a foundational budgeting skill.
- 51. C** — Add the numbers in columns from right to left, regrouping as needed: $632 + 489 = 1,121$. As a check, round to $600 + 500 = 1,100$, close to the answer.
- 52. A** — Multiplying a fraction by a whole number multiplies the numerator while keeping the denominator: $1/4 \times 3 = 3/4$. As a check, $1/4 + 1/4 + 1/4$ also equals $3/4$.
- 53. B** — 65% means 65 per 100, so $65\% = 65/100$. Divide both numerator and denominator by 5: $65 \div 5 = 13$ and $100 \div 5 = 20$, giving $13/20$. This is the simplest form because 13 and 20 share no common factors greater than 1.
- 54. D** — Divide step by step: $8,400 \div 7 = 1,200$. As a check, $7 \times 1,200 = 8,400$. Splitting the dividend into easier chunks ($7 \times 1,000 = 7,000$ and $7 \times 200 = 1,400$) confirms the answer.
- 55. A** — Multiply as if there were no decimal: $5 \times 6 = 30$. The factor 0.5 has one decimal place, so the answer has one decimal place: 3.0 (which equals 3). Counting decimal places in the factors gives the placement in the answer.
- 56. C** — Convert all fractions to a common denominator of 16: $3/8 = 6/16$ and $1/2 = 8/16$. Of the options, $7/16$ lies between $6/16$ and $8/16$. The other options ($1/4 = 4/16$, $5/8 = 10/16$, $3/16$) fall outside this interval.
- 57. B** — Total sections = $3 + 2 + 2 + 1 = 8$. Favourable outcomes (blue) = 2, so the probability of landing on blue = $2/8$. Probability is favourable outcomes over total outcomes.
- 58. D** — To isolate w , add 12 to both sides: $w = 25 + 12 = 37$. The inverse operation undoes the subtraction and keeps the equation balanced.
- 59. C** — "A number n divided by 5" translates to $n/5$, and "then increased by 2" adds 2 afterward, giving $n/5 + 2$. The order matters: dividing first and then adding is different from grouping and dividing the sum.
- 60. A** — Substitute $y = 6$ into $3y - 4$: $3(6) - 4 = 18 - 4 = 14$. Order of operations requires multiplication before subtraction.
- 61. D** — Each term doubles the one before it: $3 \rightarrow 6 \rightarrow 12 \rightarrow 24$. The next term is $24 \times 2 = 48$. A constant ratio of 2 identifies the pattern as multiplicative.

- 62. B** — Trace through the loop, subtracting 5 from total at each of the 4 iterations: $50 - 5 = 45$, $45 - 5 = 40$, $40 - 5 = 35$, $35 - 5 = 30$. The final displayed value is 30.
- 63. C** — Add the five values: $6 + 10 + 14 + 8 + 12 = 50$. Divide by the number of values: $50 \div 5 = 10$. The mean is the total divided by the count.
- 64. A** — Arrange the values in order: 9, 13, 15, 18, 20, 22, 27. The median is the middle value, which is 18. For seven values, the median is the 4th value when sorted.
- 65. B** — Range equals the largest value minus the smallest value. The highest temperature is 25°C and the lowest is 15°C , so the range is $25 - 15 = 10^{\circ}\text{C}$.
- 66. D** — Total marbles = $5 + 4 + 3 = 12$. Marbles that are NOT white = $4 \text{ black} + 3 \text{ red} = 7$, so the probability of drawing a non-white marble is $7/12$. Adding the favourable outcomes from each non-white colour gives the numerator.
- 67. A** — Each circle represents 4 students (from the legend), and Apple shows 5 circles. Multiply: $5 \times 4 = 20$ students chose apple. A pictograph key is essential — without it, the number of symbols would be meaningless.
- 68. C** — Volume of a cube = side \times side \times side = $4 \times 4 \times 4 = 64 \text{ cm}^3$. The unit is cubed because volume measures three-dimensional space.
- 69. B** — Area of a rectangle = length \times width = $9 \times 6 = 54 \text{ cm}^2$. The unit is squared because area measures two-dimensional space.
- 70. D** — A straight angle measures exactly 180° , forming a perfect straight line. A right angle is 90° , an acute angle (like 45°) is less than 90° , and a full rotation is 360° .
- 71. C** — Since 1 metre equals 100 centimetres, multiply by 100 to convert: $2.5 \times 100 = 250 \text{ cm}$. Moving from a larger unit to a smaller unit requires multiplication.
- 72. A** — Reflection across the y-axis flips the x-coordinate's sign while keeping the y-coordinate the same. Applied to (4, 3): the x changes from 4 to -4 , and the y stays at 3, giving $(-4, 3)$.
- 73. B** — Multiply the weekly savings by the number of weeks: $\$5 \times 8 = \40 . Repeated saving over time uses multiplication to find the total — a key principle in any savings plan.
- 74. D** — Convert the percent to a decimal and multiply: $20\% = 0.20$, then $0.20 \times \$30 = \6.00 . As a check, 20% is one-fifth, and one-fifth of $\$30$ is $\$6$.
- 75. C** — First find the tax: $10\% \text{ of } \$15 = 0.10 \times \$15 = \$1.50$. Add the tax to the original price: $\$15 + \$1.50 = \$16.50$. The total cost is what the customer actually pays after tax is applied.