



STUDENT TEST BOOK

Test Ninjas ISEE® Middle Level Practice Test 1

Middle Level · Grades 6–7 · Full-length practice test with answer sheet, answer key and scoring worksheet

160

QUESTIONS

+ essay

30 MINUTES

5

SECTIONS

160

MINUTES

STUDENT NAME

DATE

INSTRUCTOR OR PARENT

BEFORE YOU BEGIN

- Read the directions at the start of each section.
- Work only in the section you're timed on; don't go back or ahead.
- Mark one answer per question on the answer sheet (page 4).
- There's no penalty for wrong answers, so answer every question.
- Take a 10-minute break after Section 2 and after Section 4.

TEST INFORMATION

TIMING

160 minutes, 5 sections, 2 breaks

MATERIALS

Pencils · eraser · pen for the essay · no calculator

SCORING

Practice only · unofficial**STOP****Do not open this test book until instructed.****STUDENT ACKNOWLEDGMENT**

I understand that this practice test is unofficial and that any resulting score is an estimate.

STUDENT INITIALS

Published by Test Ninjas

Test Ninjas creates independent practice assessments and instructional resources designed to support focused academic preparation.

DOCUMENT

Test Ninjas ISEE® Middle Level Practice Test 1

PUBLISHER

Test Ninjas · test-ninjas.com

EDITION IDENTIFIER

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LEVEL

Middle Level (Grades 6–7, for students applying to grades 7 and 8)

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Independent publication and score notice

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How this test works

This test book follows the paper Middle Level ISEE: the same five sections, question counts and time limits, in the same order, with breaks after Sections 2 and 4. Time each section separately and take the whole test in one sitting if you can.

#	SECTION	LENGTH	TIME
1	Verbal Reasoning	40 questions	20 minutes
2	Quantitative Reasoning	37 questions	35 minutes
	Break		10 minutes
3	Reading Comprehension	36 questions	35 minutes
4	Mathematics Achievement	47 questions	40 minutes
	Break		10 minutes
5	Essay (unscored)	1 prompt	30 minutes

Quantitative Reasoning has two parts at this level: word problems, then quantitative comparisons, where you compare Column A with Column B.

Scoring

Each correct answer earns 1 point, and wrong answers cost nothing, so answer every question. On the real ISEE, each section's raw score becomes a scaled score from 760 to 940, then a percentile that compares the student only with other applicants to the same grade, and a stanine from 1 to 9. The essay isn't scored; a copy goes to the schools. Every question in this practice test counts; the real test mixes in a few unscored tryout questions. Score yourself with the answer key and scoring worksheet at the back of this book.

Before the questions

- Set a timer for each section.
- Do scratch work in this test book.
- Write the essay in pen on the lined pages.
- Use a No. 2 pencil on the answer sheet.
- Stop when time is called, even mid-section.
- No calculators, rulers or protractors.

ISEE MIDDLE LEVEL · PRACTICE TEST 1

Answer Sheet

Fill in one circle per question. Erase changes completely. Write the essay on the lined pages in Section 5.

SECTION 1 · VERBAL REASONING · 40 QUESTIONS

- | | | |
|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 15 (A) (B) (C) (D) | 29 (A) (B) (C) (D) |
| 2 (A) (B) (C) (D) | 16 (A) (B) (C) (D) | 30 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 17 (A) (B) (C) (D) | 31 (A) (B) (C) (D) |
| 4 (A) (B) (C) (D) | 18 (A) (B) (C) (D) | 32 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D) | 19 (A) (B) (C) (D) | 33 (A) (B) (C) (D) |
| 6 (A) (B) (C) (D) | 20 (A) (B) (C) (D) | 34 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D) | 21 (A) (B) (C) (D) | 35 (A) (B) (C) (D) |
| 8 (A) (B) (C) (D) | 22 (A) (B) (C) (D) | 36 (A) (B) (C) (D) |
| 9 (A) (B) (C) (D) | 23 (A) (B) (C) (D) | 37 (A) (B) (C) (D) |
| 10 (A) (B) (C) (D) | 24 (A) (B) (C) (D) | 38 (A) (B) (C) (D) |
| 11 (A) (B) (C) (D) | 25 (A) (B) (C) (D) | 39 (A) (B) (C) (D) |
| 12 (A) (B) (C) (D) | 26 (A) (B) (C) (D) | 40 (A) (B) (C) (D) |
| 13 (A) (B) (C) (D) | 27 (A) (B) (C) (D) | |
| 14 (A) (B) (C) (D) | 28 (A) (B) (C) (D) | |

SECTION 2 · QUANTITATIVE REASONING · 37 QUESTIONS

- | | | |
|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 14 (A) (B) (C) (D) | 27 (A) (B) (C) (D) |
| 2 (A) (B) (C) (D) | 15 (A) (B) (C) (D) | 28 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 16 (A) (B) (C) (D) | 29 (A) (B) (C) (D) |
| 4 (A) (B) (C) (D) | 17 (A) (B) (C) (D) | 30 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D) | 18 (A) (B) (C) (D) | 31 (A) (B) (C) (D) |
| 6 (A) (B) (C) (D) | 19 (A) (B) (C) (D) | 32 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D) | 20 (A) (B) (C) (D) | 33 (A) (B) (C) (D) |
| 8 (A) (B) (C) (D) | 21 (A) (B) (C) (D) | 34 (A) (B) (C) (D) |
| 9 (A) (B) (C) (D) | 22 (A) (B) (C) (D) | 35 (A) (B) (C) (D) |
| 10 (A) (B) (C) (D) | 23 (A) (B) (C) (D) | 36 (A) (B) (C) (D) |
| 11 (A) (B) (C) (D) | 24 (A) (B) (C) (D) | 37 (A) (B) (C) (D) |
| 12 (A) (B) (C) (D) | 25 (A) (B) (C) (D) | |
| 13 (A) (B) (C) (D) | 26 (A) (B) (C) (D) | |

SECTION 3 · READING COMPREHENSION · 36 QUESTIONS

- | | | |
|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 13 (A) (B) (C) (D) | 25 (A) (B) (C) (D) |
| 2 (A) (B) (C) (D) | 14 (A) (B) (C) (D) | 26 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 15 (A) (B) (C) (D) | 27 (A) (B) (C) (D) |
| 4 (A) (B) (C) (D) | 16 (A) (B) (C) (D) | 28 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D) | 17 (A) (B) (C) (D) | 29 (A) (B) (C) (D) |
| 6 (A) (B) (C) (D) | 18 (A) (B) (C) (D) | 30 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D) | 19 (A) (B) (C) (D) | 31 (A) (B) (C) (D) |
| 8 (A) (B) (C) (D) | 20 (A) (B) (C) (D) | 32 (A) (B) (C) (D) |
| 9 (A) (B) (C) (D) | 21 (A) (B) (C) (D) | 33 (A) (B) (C) (D) |
| 10 (A) (B) (C) (D) | 22 (A) (B) (C) (D) | 34 (A) (B) (C) (D) |
| 11 (A) (B) (C) (D) | 23 (A) (B) (C) (D) | 35 (A) (B) (C) (D) |
| 12 (A) (B) (C) (D) | 24 (A) (B) (C) (D) | 36 (A) (B) (C) (D) |

SECTION 4 · MATHEMATICS ACHIEVEMENT · 47 QUESTIONS

- | | | | | |
|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1 (A) (B) (C) (D) | 11 (A) (B) (C) (D) | 21 (A) (B) (C) (D) | 31 (A) (B) (C) (D) | 41 (A) (B) (C) (D) |
| 2 (A) (B) (C) (D) | 12 (A) (B) (C) (D) | 22 (A) (B) (C) (D) | 32 (A) (B) (C) (D) | 42 (A) (B) (C) (D) |
| 3 (A) (B) (C) (D) | 13 (A) (B) (C) (D) | 23 (A) (B) (C) (D) | 33 (A) (B) (C) (D) | 43 (A) (B) (C) (D) |
| 4 (A) (B) (C) (D) | 14 (A) (B) (C) (D) | 24 (A) (B) (C) (D) | 34 (A) (B) (C) (D) | 44 (A) (B) (C) (D) |
| 5 (A) (B) (C) (D) | 15 (A) (B) (C) (D) | 25 (A) (B) (C) (D) | 35 (A) (B) (C) (D) | 45 (A) (B) (C) (D) |
| 6 (A) (B) (C) (D) | 16 (A) (B) (C) (D) | 26 (A) (B) (C) (D) | 36 (A) (B) (C) (D) | 46 (A) (B) (C) (D) |
| 7 (A) (B) (C) (D) | 17 (A) (B) (C) (D) | 27 (A) (B) (C) (D) | 37 (A) (B) (C) (D) | 47 (A) (B) (C) (D) |
| 8 (A) (B) (C) (D) | 18 (A) (B) (C) (D) | 28 (A) (B) (C) (D) | 38 (A) (B) (C) (D) | |
| 9 (A) (B) (C) (D) | 19 (A) (B) (C) (D) | 29 (A) (B) (C) (D) | 39 (A) (B) (C) (D) | |
| 10 (A) (B) (C) (D) | 20 (A) (B) (C) (D) | 30 (A) (B) (C) (D) | 40 (A) (B) (C) (D) | |

SECTION 1 OF 5

1 Verbal Reasoning

40 questions · 20 minutes

DIRECTIONS

This section has two parts, synonyms and sentence completions. Each question has four answer choices. Choose the best answer and fill in its circle on your answer sheet.

Part One · Synonyms

Each question is a word in capital letters followed by four choices. Choose the word that is most nearly the same in meaning as the word in capital letters.

1 SYNONYM

VACANT

- (A) empty
- (B) full
- (C) narrow
- (D) noisy

2 SYNONYM

AROMA

- (A) breeze
- (B) flavor
- (C) scent
- (D) stench

3 SYNONYM

MEND

- (A) borrow
- (B) damage
- (C) hurry
- (D) repair

4 SYNONYM

PECULIAR

- (A) odd
- (B) private
- (C) sudden
- (D) tidy

5 SYNONYM

CONCEAL

- (A) delay
- (B) discover
- (C) erase
- (D) hide

6 SYNONYM

SUMMIT

- (A) border
- (B) meadow
- (C) peak
- (D) valley

7 SYNONYM

TOSS

- (A) catch
- (B) drop
- (C) lift
- (D) throw

8 SYNONYM

FRUGAL

- (A) fearful
- (B) fragile
- (C) thrifty
- (D) truthful

9 SYNONYM

DECAY

- (A) burn
- (B) grow
- (C) melt
- (D) rot

10 SYNONYM

PERIL

- (A) danger
- (B) journey
- (C) reward
- (D) rumor

11 SYNONYM

HARDSHIP

- (A) difficulty
- (B) ease
- (C) effort
- (D) sorrow

12 SYNONYM

ASSEMBLE

- (A) announce
- (B) decorate
- (C) gather
- (D) scatter

13 SYNONYM

CANDID

- (A) frank
- (B) guarded
- (C) polite
- (D) sweet

14 SYNONYM

VESSEL

- (A) anchor
- (B) cargo
- (C) harbor
- (D) ship

15 SYNONYM

PLACID

- (A) calm
- (B) flexible
- (C) shallow
- (D) sturdy

16 SYNONYM

METICULOUS

- (A) careful
- (B) clever
- (C) hesitant
- (D) youthful

17 SYNONYM

DIMINISH

- (A) destroy
- (B) polish
- (C) postpone
- (D) shrink

18 SYNONYM

BENEVOLENT

- (A) forceful
- (B) kind
- (C) talkative
- (D) wealthy

19 SYNONYM

ABUNDANCE

- (A) ceremony
- (B) mixture
- (C) plenty
- (D) shortage

20 SYNONYM

AMBIGUOUS

- (A) unclear
- (B) untrue
- (C) unusual
- (D) unwilling

Part Two · Sentence Completion

Each question is a sentence with one blank. Choose the word that best completes the meaning of the sentence.

21 SENTENCE COMPLETION

The caretaker called out once at the bottom of the deserted stairwell, and a second later she heard the -----, her own voice returned to her by the stone walls.

- (A) answer
- (B) echo
- (C) silence
- (D) warning

22 SENTENCE COMPLETION

The rules of the game were so ----- that even first-time campers could follow them without help.

- (A) lengthy
- (B) simple
- (C) strange
- (D) technical

23 SENTENCE COMPLETION

Instead of discarding the leftover fabric, the students decided to ----- it, and the quilt they sewed from those scraps now hangs in the school library.

- (A) measure
- (B) purchase
- (C) release
- (D) transform

24 SENTENCE COMPLETION

The referee's decision was clearly -----; she applied the same rule to the local squad that she had applied to their rivals moments earlier.

- (A) fair
- (B) hasty
- (C) mistaken
- (D) strict

25 SENTENCE COMPLETION

Years of flooding had made the wooden bridge such a ----- that the city closed it to traffic.

- (A) bargain
- (B) hazard
- (C) landmark
- (D) shelter

26 SENTENCE COMPLETION

The scientist repeated the experiment a dozen times, since one result alone was not enough to ----- her theory.

- (A) confirm
- (B) publish
- (C) question
- (D) reject

27 SENTENCE COMPLETION

Although the museum guide spoke for nearly an hour, her stories so ----- her audience that they begged her to continue.

- (A) bored
- (B) captivated
- (C) confused
- (D) exhausted

28 SENTENCE COMPLETION

The coach warned that one wild throw could ----- the team's lead in the final minutes.

- (A) deserve
- (B) erase
- (C) extend
- (D) protect

29 SENTENCE COMPLETION

The team manager wrote down the time of every event, from the opening speech at nine o'clock to the last race at four, and taped the finished ----- to the locker-room door the night before the meet.

- (A) budget
- (B) invitation
- (C) schedule
- (D) summary

30 SENTENCE COMPLETION

Every member of the council admired the plans for the new pool, but the ----- of the project, nearly a million dollars beyond the first estimate, made approval impossible.

- (A) beauty
- (B) deadline
- (C) expense
- (D) purpose

31 SENTENCE COMPLETION

Rather than accepting the old tale as fact, the historian ----- every letter and diary she could locate before drawing any conclusion.

- (A) copied
- (B) examined
- (C) ignored
- (D) mailed

32 SENTENCE COMPLETION

Although the speaker had every reason to shout back at the heckler who kept interrupting him, he answered with such ----- that the crowd admired him more than the man who had provoked him.

- (A) fury
- (B) humor
- (C) modesty
- (D) restraint

33 SENTENCE COMPLETION

The marble stairs looked solid, but the steady traffic of thousands of visitors a day had begun to ----- them, hollowing each step a fraction of an inch every year.

- (A) crack
- (B) erode
- (C) strengthen
- (D) widen

34 SENTENCE COMPLETION

The attorney's closing statement was so ----- that even her opponents admitted they could find no flaw in it.

- (A) emotional
- (B) familiar
- (C) persuasive
- (D) sarcastic

35 SENTENCE COMPLETION

The visiting team arrived an hour early and warmed up without saying a word, hoping to ----- the home team; by the time the whistle blew, three of the home players were too rattled to hold on to the ball.

- (A) distract
- (B) encourage
- (C) impress
- (D) intimidate

36 SENTENCE COMPLETION

The critic's review was so ----- that the author considered giving up her novel altogether.

- (A) anonymous
- (B) flattering
- (C) scathing
- (D) thoughtful

37 SENTENCE COMPLETION

Although the design looked attractive on paper, the engineers showed that actually building it would be entirely -----.

- (A) affordable
- (B) impractical
- (C) original
- (D) profitable

38 SENTENCE COMPLETION

The prize was awarded not to the loudest debater but to the one whose reasoning proved most -----, holding up under every objection the judges raised.

- (A) elaborate
- (B) rapid
- (C) sound
- (D) traditional

39 SENTENCE COMPLETION

Although the lighthouse keeper had lived on the island for forty years, the new law forced him to ----- the cottage that had been his home since boyhood, and by autumn a stranger was living in it.

- (A) inherit
- (B) register
- (C) relinquish
- (D) restore

40 SENTENCE COMPLETION

Doctors greeted the early findings with -----, warning that a single encouraging trial does not prove that a treatment works.

- (A) certainty
- (B) enthusiasm
- (C) indifference
- (D) skepticism

STOP

If you finish before time is called, check your work in this section only. Don't turn to another section.

SECTION 2 OF 5

2 Quantitative Reasoning

37 questions · 35 minutes

DIRECTIONS

This section has two parts: word problems, then quantitative comparisons. Work the problems in this test book; calculators are not allowed. Figures are drawn as accurately as possible unless a note says otherwise.

Part One · Word Problems

Each question has four answer choices. Work the problem and choose the best answer.

1 WORD PROBLEM

A machine fills 12 bottles every 2 minutes. At this rate, how many bottles will the machine fill in 10 minutes?

- (A) 5
- (B) 24
- (C) 60
- (D) 120

2 WORD PROBLEM

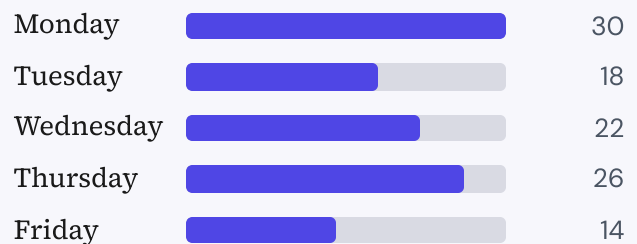
A park has more oak trees than maple trees. The park has more maple trees than birch trees. Which statement must be true?

- (A) There are more oak trees than birch trees.
- (B) There are more birch trees than maple trees.
- (C) There are the same number of oak trees as birch trees.
- (D) There are more birch trees than oak trees.

3 WORD PROBLEM

A school store sells notebooks for \$4 each and pens for \$2 each. The graph below shows the number of notebooks the store sold on each day of last week.

NOTEBOOKS SOLD LAST WEEK



If 20% of the notebooks sold on Monday were blue, how many blue notebooks were sold on Monday?

- (A) 6
- (B) 20
- (C) 24
- (D) 30

4 WORD PROBLEM

In an office tower, the floors below the ground floor are numbered with negative integers. An elevator is on level -6 . The elevator then rises 15 levels. On which level is the elevator now?

- (A) -21
- (B) -9
- (C) 9
- (D) 21

5 WORD PROBLEM

The number n is an odd whole number. Which of the following must be an even number?

- (A) $n + 2$
- (B) $3n$
- (C) $2n + 1$
- (D) $n + 3$

6 WORD PROBLEM

A playlist contains 4 jazz songs, 6 rock songs, and 10 classical songs. The playlist plays one of its songs at random. What is the probability that the song played is a jazz song?

- (A) $1/5$
- (B) $1/4$
- (C) $3/10$
- (D) $1/2$

7 WORD PROBLEM

The mean (average) of five numbers is 12. One of the five numbers is 20. What is the mean of the other four numbers?

- (A) 8
- (B) 10
- (C) 12
- (D) 15

8 WORD PROBLEM

Bus A leaves the station every 6 minutes. Bus B leaves the station every 8 minutes. Both buses leave the station at 9:00 A.M. At what time will both buses next leave the station at the same time?

- (A) 9:02 A.M.
- (B) 9:14 A.M.
- (C) 9:24 A.M.
- (D) 9:48 A.M.

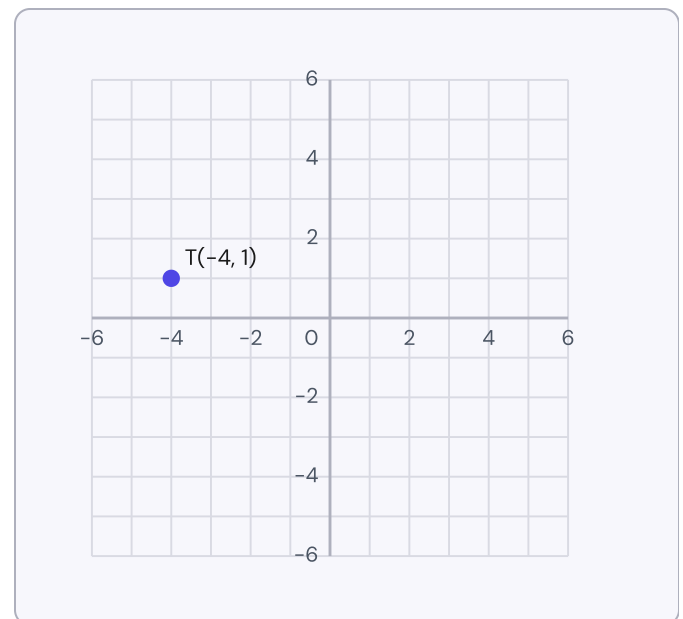
9 WORD PROBLEM

In rectangle RSTU, the length is 3 times the width. The width of the rectangle is doubled and the length stays the same. The area of the new rectangle is

- (A) equal to the area of RSTU
- (B) 2 times the area of RSTU
- (C) 3 times the area of RSTU
- (D) 6 times the area of RSTU

10 WORD PROBLEM

In the coordinate plane below, one point is plotted and labeled T.



Which of the following points is farther from the y-axis than point T is?

- (A) $(-2, -9)$
- (B) $(1, 8)$
- (C) $(3, 0)$
- (D) $(-6, 1)$

11 WORD PROBLEM

The table below shows the regular price of four items at a sports shop.

Item	Regular price
Backpack	\$50
Helmet	\$65
Water bottle	\$12
Cap	\$18

Only the backpack is on sale, at 30% off its regular price. What is the sale price of the backpack?

- (A) \$15
- (B) \$20
- (C) \$35
- (D) \$47

12 WORD PROBLEM

A plumber drives 15 miles to reach a house. She charges \$40 for the visit plus \$20 for each hour she works. The total bill for the job is \$140. For how many hours did the plumber work?

- (A) 2
- (B) 5
- (C) 7
- (D) 9

13 WORD PROBLEM

In a class, the ratio of the number of boys to the number of girls is 3 to 5. There are 24 students in the class. How many girls are in the class?

- (A) 5
- (B) 9
- (C) 15
- (D) 24

14 WORD PROBLEM

Eight volunteers each counted the number of birds they saw in one hour. The stem-and-leaf plot below gives the eight results.

BIRDS SEEN IN ONE HOUR

Stem	Leaves
0	2 3 5 5 6 8 9
1	2

Key: 1 | 2 = 12 birds

What is the median of these numbers?

- (A) 5
- (B) 5.5
- (C) 6
- (D) 6.25

15 WORD PROBLEM

The first four terms of a pattern are 9, 16, 23, 30, ... If the pattern continues in the same way, what is the 10th term?

- (A) 37
- (B) 65
- (C) 70
- (D) 72

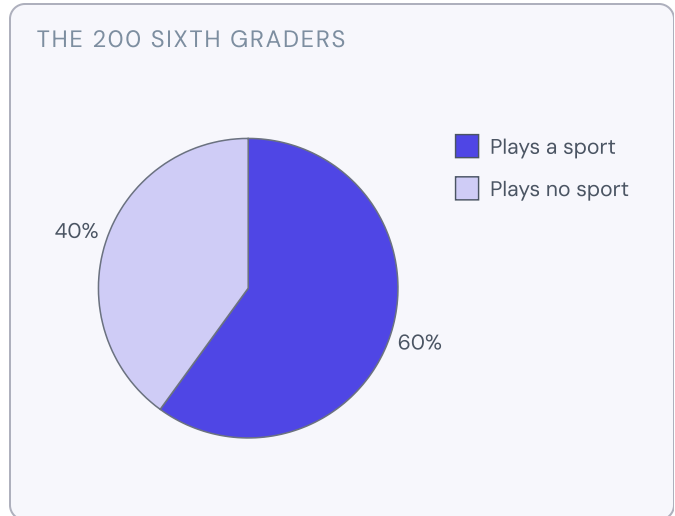
16 WORD PROBLEM

Two murals are painted side by side on the same wall of a school hallway. Each mural is a rectangle that runs from the floor to the ceiling, so the two murals have the same height. The first mural is 15 feet wide, and the second mural is 5 feet wide. Which statement about the two murals must be true?

- (A) The area of the first mural is 10 square feet greater than the area of the second mural.
- (B) The perimeter of the first mural is 3 times the perimeter of the second mural.
- (C) The areas of the two murals cannot be compared, because the height of the wall is not given.
- (D) The area of the first mural is 3 times the area of the second mural.

17 WORD PROBLEM

The circle graph below shows the results of a survey of the 200 sixth graders at a school.



Of the sixth graders who play a sport, exactly half play soccer. How many sixth graders play soccer?

- (A) 60
- (B) 80
- (C) 100
- (D) 120

18 WORD PROBLEM

On a map, 2 centimeters represents 15 kilometers. The map is 30 centimeters wide. Two cities are 8 centimeters apart on the map. What is the actual distance between the two cities?

- (A) 60 kilometers
- (B) 120 kilometers
- (C) 225 kilometers
- (D) 240 kilometers

19 WORD PROBLEM

After a discount of 20%, the price of a bicycle is \$160. What was the price of the bicycle before the discount?

- (A) \$128
- (B) \$180
- (C) \$192
- (D) \$200

20 WORD PROBLEM

A rectangular garden measures 12 feet by 8 feet, and the gardener has planted 30 tomato plants in it. A walkway 1 foot wide is built all the way around the outside of the garden. What is the area of the walkway, in square feet?

- (A) 40
- (B) 44
- (C) 96
- (D) 140

Part Two · Quantitative Comparisons

Use the information given with each question to compare the quantity in Column A with the quantity in Column B. Choose (A) if Column A is greater, (B) if Column B is greater, (C) if the two quantities are equal, or (D) if the relationship cannot be determined from the information given.

21 QUANTITATIVE COMPARISON

COLUMN A	COLUMN B
25×4	50×2

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

22 QUANTITATIVE COMPARISON

COLUMN A	COLUMN B
$\frac{2}{3}$	0.7

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

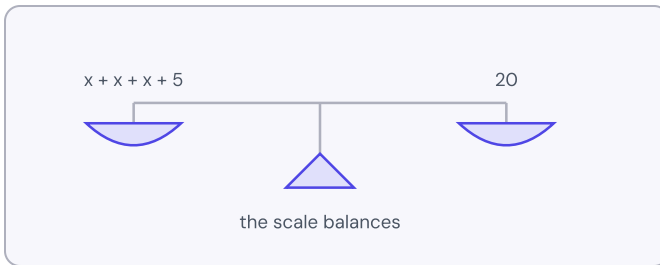
23 QUANTITATIVE COMPARISON

COLUMN A	COLUMN B
The number of whole-number factors of 12	The number of whole-number factors of 16

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

24 QUANTITATIVE COMPARISON

The scale below balances.



COLUMN A	COLUMN B
x	5

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

25 QUANTITATIVE COMPARISON

x is a negative number.

COLUMN A	COLUMN B
$x + 5$	$5 - x$

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

26 QUANTITATIVE COMPARISON

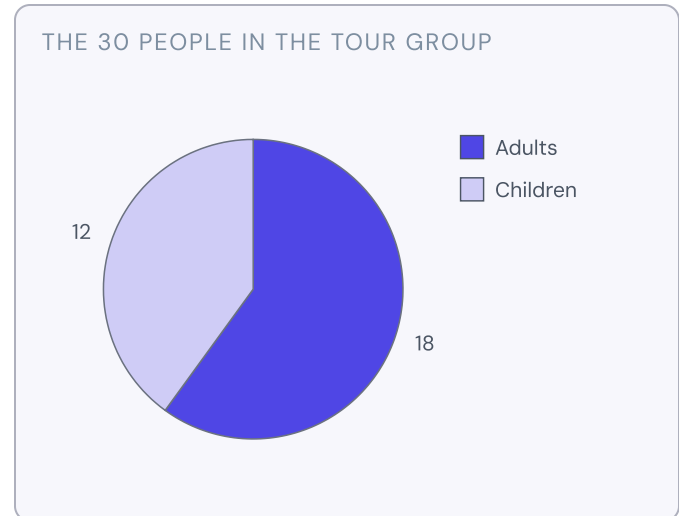
n is a number.

COLUMN A	COLUMN B
$2n$	$n + 2$

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

27 QUANTITATIVE COMPARISON

The circle graph below shows how the 30 people in a tour group are divided. The group travels in 5 vans.

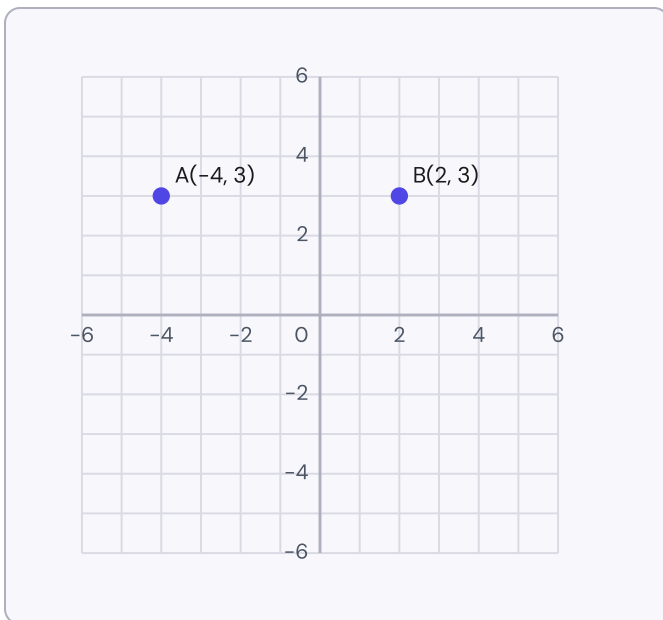


COLUMN A	COLUMN B
The fraction of the people in the group who are children	$\frac{2}{5}$

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

28 QUANTITATIVE COMPARISON

Two points, A and B, are plotted in the coordinate plane below.



COLUMN A	COLUMN B
The distance from A to B	5

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

29 QUANTITATIVE COMPARISON

A square has a perimeter of 28 centimeters.

COLUMN A	COLUMN B
The area of the square, in square centimeters	49

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

30 QUANTITATIVE COMPARISON

A box contains 7 blue pencils and 5 yellow pencils. Ana takes one pencil at random, records its color, and puts it back in the box. She repeats this 15 times.

COLUMN A	COLUMN B
The probability that the first pencil Ana takes is blue	$\frac{1}{2}$

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

31 QUANTITATIVE COMPARISON

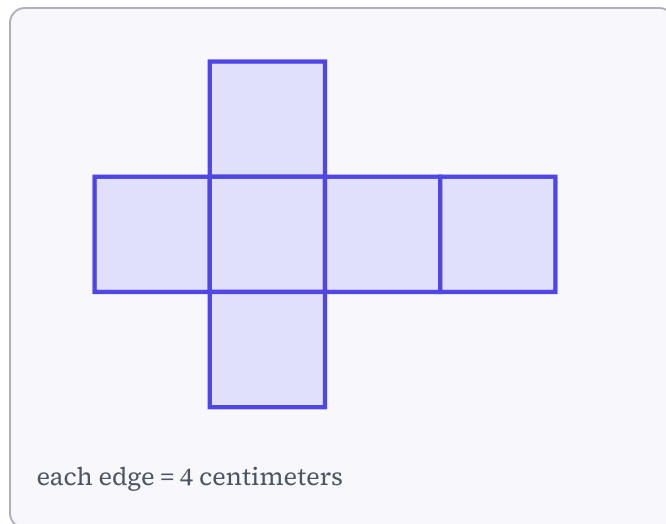
m and n are numbers, and $mn = 24$.

COLUMN A	COLUMN B
$m + n$	10

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

32 QUANTITATIVE COMPARISON

The net below folds to make a cube.



COLUMN A	COLUMN B
The volume of the cube, in cubic centimeters	The volume of a rectangular box measuring 2 centimeters by 4 centimeters by 8 centimeters

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

33 QUANTITATIVE COMPARISON

a and b are positive numbers, and the ratio of a to b is 3 to 4.

COLUMN A	COLUMN B
a	b

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

34 QUANTITATIVE COMPARISON

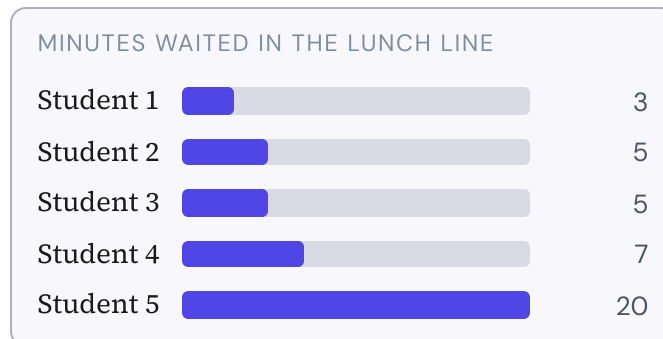
The mean (average) of a set of 5 numbers is 10.

COLUMN A	COLUMN B
The median of the set	10

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

35 QUANTITATIVE COMPARISON

The graph below shows the number of minutes each of five students spent waiting in the lunch line on Monday. The lunch period lasts 45 minutes.



COLUMN A	COLUMN B
The mean of the five waiting times	The median of the five waiting times

- (A) The quantity in Column A is greater.
 (B) The quantity in Column B is greater.
 (C) The two quantities are equal.
 (D) The relationship cannot be determined from the information given.

36 QUANTITATIVE COMPARISON

n is a positive number. The number n is increased by 10%, and then that result is decreased by 10%.

COLUMN A	COLUMN B
The final result	n

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

37 QUANTITATIVE COMPARISON

A bag contains only red counters and green counters. The probability of drawing a red counter at random is $\frac{2}{5}$.

COLUMN A	COLUMN B
The number of red counters in the bag	4

- (A) The quantity in Column A is greater.
- (B) The quantity in Column B is greater.
- (C) The two quantities are equal.
- (D) The relationship cannot be determined from the information given.

STOP

If you finish before time is called, check your work in this section only. Then take a 10-minute break before Section 3.

SECTION 3 OF 5

3 Reading Comprehension

36 questions • 35 minutes

DIRECTIONS

Read each passage, then answer the questions about it. Answer on the basis of what the passage states or implies. Line numbers in the margin help you find the lines a question mentions.

PASSAGE 1 • QUESTIONS 1–6

Four thousand feet below the surface of the Pacific, the water is as dark as the inside of a cave. Sunlight fades to a dim blue by six hundred feet, and by three thousand feet even that trace of it is gone. Yet the deep ocean is not a lightless place. It sparks, pulses, and glows with light that the animals make themselves, a phenomenon biologists call bioluminescence.

That light is a product of chemistry rather than of heat. Inside the cells of a glowing organism, a molecule called luciferin combines with oxygen. An enzyme named luciferase speeds the reaction along, and the energy the reaction releases leaves the cell as light instead of warmth. Very little escapes as heat, which is why the result is often called cold light. Hold a firefly in your palm and you feel nothing at all. An ordinary incandescent bulb, by comparison, spends most of its energy warming the room and only a little of it lighting the page.

Light in the deep is never free, however. An animal that glows also betrays its own position to whatever is hunting it, so a living lamp must earn its keep. Many species use theirs as camouflage. A hatchetfish hanging in the dim water above, seen from below, would appear as a dark silhouette against the faint glow drifting down from the surface, an easy target; instead, rows of light organs along its belly erase that outline by matching the brightness overhead. Biologists call this counterillumination, which amounts to hiding by shining.

Other animals turn light into a weapon or a trap. Certain deep-sea shrimp, when seized, spew a cloud of glowing fluid into the face of the attacker and dart away while it is dazzled. Some jellyfish do the opposite of hiding: attacked, they flash so violently that they advertise the attacker's location to something larger, a defense researchers have nicknamed the burglar alarm. The anglerfish uses light to fish for its own dinner, dangling a glowing lure above its jaws. The glow, though, is not the anglerfish's own. It comes from bacteria that live inside the lure, sheltered and fed by the fish in exchange for their light.

On land the same chemistry serves a different purpose entirely: conversation. Each firefly species flashes in a pattern of its own, a code of blinks and pauses that lets a male signal across a summer field and a female of his own kind answer. Certain females of the genus *Photuris* have learned to answer in a code that is not theirs. They imitate the reply of another species, and when the hopeful male arrives expecting a mate, they eat him. The same silent language that draws two fireflies together can also, in the right mouth, be turned into a lie.

1 MAIN IDEA

The passage is primarily concerned with

- (A) the reasons sunlight fades to blue and then vanishes in the deepest parts of the ocean
- (B) the chemical reaction between luciferin and oxygen that goes on inside a glowing cell
- (C) how living things make their own light and the uses they find for it
- (D) the flashing codes fireflies use to attract mates and to deceive other species

2 ORGANIZATION / LOGIC

The comparison with an ordinary incandescent bulb (lines 13–15) serves primarily to

- (A) suggest that glowing animals may one day be used to light buildings
- (B) emphasize how little of a glowing animal's energy is wasted as heat
- (C) show that human inventions have improved on the natural world
- (D) explain why light and heat are always produced by the same reaction

3 VOCABULARY

As used in line 17, the word "betrays" most nearly means

- (A) deceives
- (B) abandons
- (C) defends
- (D) reveals

4 SUPPORTING IDEAS

According to the passage, the rows of light organs along a hatchetfish's belly protect the fish by

- (A) matching the brightness above it so that its outline disappears
- (B) producing a sudden flash that startles an approaching hunter
- (C) drawing smaller fish toward the hatchetfish's open jaws
- (D) signaling to other hatchetfish that a predator is nearby

5 SUPPORTING IDEAS

The passage indicates that the light in an anglerfish's lure is produced by

- (A) bacteria that live inside the lure itself
- (B) luciferin stored in the muscles of the fish's jaws
- (C) a chemical reaction in the skin along the fish's belly
- (D) a glowing fluid that the fish releases into the water

6 INFERENCE

The passage suggests that a deep-sea species is likely to keep the ability to glow only when

- (A) the advantage the light provides is greater than the danger of being seen
- (B) the species lives deeper than three thousand feet below the surface
- (C) the species can produce its light without using any oxygen
- (D) the animals that hunt it are unable to see light of that color

PASSAGE 2 · QUESTIONS 7–12

In June of 1869, John A. Roebling stood at the edge of the Fulton Ferry slip in Brooklyn, taking measurements for a bridge that most New Yorkers were certain could never be built. A ferry drifted into the pilings and crushed his foot against a timber. Within a month tetanus had killed him. The bridge he had designed, a suspension span longer than any yet attempted, existed only on paper.

The work passed to his son. Washington Roebling was thirty-two, a Civil War veteran and a trained engineer, and he inherited both his father's drawings and his father's critics. The hardest labor lay underwater. To found the two great towers, crews sank enormous wooden boxes called caissons upside down onto the riverbed and pumped them full of compressed air to push the water back out. Inside, by lamplight, men dug away mud and stone while the river pressed on the walls around them. The wages were the best on the waterfront and the danger was not obvious. Then workers who rose too quickly from the pressurized air began to be seized by pain in the joints, by dizziness, sometimes by paralysis. They called it caisson disease. No one yet understood that the cause was the speed of their return to ordinary air.

In 1872 Roebling was carried out of a caisson himself, and he never fully recovered. For the eleven years of construction that remained, he ran the project from a window in Brooklyn Heights, following the towers through a telescope. Some of the trustees wavered. They asked one another, openly and in public, whether a chief engineer who could not walk onto his own bridge deserved to keep the title.

What kept him in the job was his wife. Emily Warren Roebling taught herself the mathematics the work demanded, the curve of a hanging cable and the strength of steel wire, and carried her husband's instructions to the site each day. She answered the questions of contractors, argued with the board, and reported back what she had seen with her own eyes. Within a few years, engineers who came to inspect the bridge assumed they should address their questions to her. In 1882, when the trustees moved to remove her husband, she spoke on his behalf, and the effort to replace him failed.

The bridge opened on May 24, 1883. Emily rode across it first, in a carriage, carrying a rooster as an old sign of victory, while cannon fired and Washington watched from the window he had watched from for eleven years. The span was 1,595 feet, a fifth longer than any suspension bridge on earth. For fourteen years the Roeblings had been paying for it in a currency no ledger recorded.

7 MAIN IDEA

The passage is primarily concerned with

- (A) the engineering methods used to sink the bridge's caissons and keep the river out of them
- (B) the symptoms of caisson disease and the treatments that were eventually developed for it
- (C) the reasons New Yorkers were certain that a span of that length could never be built
- (D) the cost in injury and effort that one family paid to finish the bridge

8 SUPPORTING IDEAS

According to the passage, the caissons were pumped full of compressed air in order to

- (A) give the workers underground an air that was easier to breathe
- (B) hold back the river so that men could dig on the bottom
- (C) keep the wooden walls from collapsing under the weight of the towers
- (D) raise the caissons to the surface once the digging was finished

9 INFERENCE

The statement that Roebling "was carried out of a caisson himself" (line 21) most strongly suggests that he

- (A) had been ordered underground by the trustees of the bridge
- (B) was the first man on the project to suffer from caisson disease
- (C) had been working in the same conditions as the men he directed
- (D) had refused to believe that the compressed air could be harmful

10 VOCABULARY

As used in line 18, the word "seized" most nearly means

- (A) taken prisoner
- (B) overcome
- (C) grasped in the hand
- (D) understood at once

11 INFERENCE

The passage suggests that the trustees questioned Roebling's right to the title of chief engineer mainly because

- (A) they believed his father's design contained a serious flaw
- (B) the cost of the caisson work had risen beyond their estimates
- (C) they wanted his wife to be given the position instead
- (D) his illness kept him from ever appearing at the site

12 SUPPORTING IDEAS

The passage states that engineers who came to inspect the bridge eventually

- (A) brought their questions to Emily Roebling
- (B) refused to take instructions that came from a woman
- (C) recommended that Washington Roebling be replaced
- (D) asked to examine the drawings left behind by John Roebling

PASSAGE 3 • QUESTIONS 13–18

For three days Wren had studied the high board from the shallow end, gauging its height against the fence, the flagpole, the roof of the snack bar. It was not that she could not swim. She had swum all her life in a lake in Ohio, in water the color of weak tea, where nothing a person did was visible from more than a foot away. The pool in Coldwater was another matter. It was blue as a bathroom tile and lit from underneath, and everything anybody did in it was on display.

Her family had arrived in June. By the middle of July the other twelve-year-olds in town had settled into their arrangements, and Wren had learned exactly two names, one of which belonged to the lifeguard.

On Thursday the line for the high board was six kids long, and she joined the end of it before she could argue herself out of it. The rungs of the ladder were cold as dimes. At the top the board was rougher underfoot than she expected, like the tongue of a cat, and she walked out to the middle and stopped.

From up there the water no longer looked like water. It looked like a sheet of hammered tin, flat and bright and hard, and her stomach explained to her, very reasonably, that a person could break herself on a surface like that. Behind her, someone was waiting. Wren did not turn around. She counted to three. Then she counted to three again. She was aware of the whole afternoon going on below her, the whistle, the smell of chlorine and coconut, and of exactly how long she had been standing in one place.

"Take your time," said the girl behind her. Not kindly, particularly. Just flatly, the way a person states a fact.

Something about being handed permission made the permission unnecessary. Wren took two steps and went off the end with no style whatsoever, arms wheeling, one knee bent. The hammered tin turned out to be only water after all. It let her through, and the cold of it went straight to her teeth, and she came up gasping and laughing at the same time, which is difficult to do.

The girl landed a second later, a clean, quiet entry that hardly made a splash.

"You counted too long," she said, treading water. "Everybody does, the first time."

"How long did you count?"

"Nine days," the girl said. "I was seven. I'm Pilar."

They swam to the ladder together. Wren climbed out, her feet printing dark shapes on the hot concrete, and she walked back to the end of the line, which was eight kids long by then, and not one of them turned to look at her. Standing there dripping, waiting her turn like anyone else, she understood that this was the good part.

13 MAIN IDEA

The passage is primarily about

- (A) a girl who is forced to learn to swim in an unfamiliar pool in an unfamiliar town
- (B) a newcomer's frightening first step toward belonging in a new town
- (C) a friendship between two girls that began years earlier, when both of them were seven
- (D) the summer routines that the children of a small town settle into by the middle of July

14 VOCABULARY

As used in line 2, the word "gauging" most nearly means

- (A) doubting
- (B) praising
- (C) estimating
- (D) reaching

15 SUPPORTING IDEAS

According to the passage, the lake in Ohio differed from the pool in Coldwater in that the lake

- (A) was too dark for anyone to see what a swimmer was doing
- (B) had no diving board at either end
- (C) was colder than the water in the pool
- (D) was crowded with children Wren already knew

16 TONE / STYLE / FIGURATIVE LANGUAGE

The comparison of the water to "a sheet of hammered tin" (line 19) mainly conveys

- (A) how dirty the pool had grown by the end of the afternoon
- (B) how far Wren had traveled from the lake in Ohio
- (C) how crowded the deep end appeared from above
- (D) how hard and unwelcoming the surface looked to Wren

17 INFERENCE

The passage suggests that what Wren feared most about the high board was

- (A) that she would be unable to swim to the ladder afterward
- (B) that the six kids waiting behind her would lose patience
- (C) that she would do something badly where everyone could watch
- (D) that the water in the pool would be colder than she expected

18 INFERENCE

Pilar's answer that she counted for "nine days" (line 39) is best understood as

- (A) an admission that she had once hesitated on the board as Wren did
- (B) a boast about how young she had been when she learned to dive
- (C) a complaint about how long Wren had kept the line waiting
- (D) an exaggeration intended to embarrass Wren in front of the others

PASSAGE 4 • QUESTIONS 19–24

Before anyone cuts a single piece of colored glass, a stained-glass window exists only as a drawing. The artist tapes a sheet of heavy paper across a long table and draws the window at full size: every face, every fold of cloth, every leaf on every branch. This full-scale drawing is called the cartoon, from an old word for stiff paper; it has nothing to do with humor. Heavy black lines run through the cartoon like the seams of a puzzle, because those lines mark where the strips of lead will eventually go. Where they belong must be settled at the beginning, since a face cannot be cut in half without ruining it.

The color is in the glass before it ever reaches the workshop. At the glasshouse, metal oxides are stirred into the molten batch: cobalt for a deep blue, iron for greens and ambers, manganese for purple. Copper can be coaxed into a red so strong that a whole sheet of it would read as nearly black, so glassmakers often float a thin skin of that red over clear glass instead. The color is part of the material itself, not paint brushed onto a surface. Sheets lean in stacks against the workshop wall, and when the door opens they throw bands of color across the floor.

Cutting comes next. A small steel wheel scores a shallow line, and a tap from underneath persuades the glass to break along it. Curves are coaxed rather than commanded. Pliers with blunt jaws, called grozing pliers, nibble the ragged edge back toward the drawn line, a bite at a time, until the piece settles into its place on the cartoon.

Then the painting begins, though it is not painting as most people imagine it. The pigment is a dark mixture of finely ground glass and iron oxide, and it is used mainly to hold light back: a shadow under a chin, a fold of drapery, the dark rim of an eye. When the pieces go into the kiln, the ground glass in the paint softens and fuses with the sheet beneath it, so the marks become part of the glass rather than a film resting on top of it.

Finally the pieces are fitted into grooved lead strips and every joint is soldered. Putty is worked under the lead to seal the panel against rain and to stiffen it. Iron bars are tied across the back, because a window of any size would otherwise sag under its own weight.

What the artist has made, in the end, is not a picture but an instrument for light. At noon the window burns. By late afternoon the reds have gone quiet and the blues have deepened. On a gray morning the whole thing waits, dim and patient. No two hours of the day produce quite the same window.

19 MAIN IDEA

The passage is primarily concerned with

- (A) the reasons medieval glassmakers preferred cobalt and iron to other coloring metals
- (B) how a drawing becomes a window, and why light is as much a part of the work as the glass
- (C) the difficulty of repairing a stained-glass window once it has been installed
- (D) the differences between painting a picture on canvas and painting on glass

20 SUPPORTING IDEAS

According to the passage, the color in a sheet of stained glass comes chiefly from

- (A) dark pigment brushed on and then fired in a kiln
- (B) metal oxides stirred into the glass while it is still molten
- (C) the lead strips and putty that surround each piece
- (D) a stain the artist applies after the pieces have been cut

21 INFERENCE

It can be inferred from lines 6–10 that the artist must

- (A) treat the lead lines as part of the picture and settle their paths while designing it
- (B) draw the cartoon in black ink so that the lead will match it
- (C) leave human faces out of a window whenever it is possible to do so
- (D) cut the glass before the cartoon has been completed

22 VOCABULARY

As used in line 31, the word "fuses" most nearly means

- (A) becomes hard
- (B) stands out against
- (C) burns away
- (D) becomes joined with

23 INFERENCE

The passage suggests that a person who has seen a particular stained-glass window only once, at noon, has

- (A) seen it under the only conditions its maker intended
- (B) seen just one of the many appearances that window can take
- (C) almost certainly missed the painted details
- (D) seen it at the hour when its colors are hardest to tell apart

24 ORGANIZATION / LOGIC

The passage is organized mainly by

- (A) following the making of a window in the order in which the work is done
- (B) comparing modern workshops with medieval ones
- (C) listing objections to a common opinion and answering them one by one
- (D) describing a single finished window from its top to its bottom

PASSAGE 5 • QUESTIONS 25–30

In thousands of American middle schools the first bell rings before eight o'clock, and in some it rings before half past seven. Students who ride a bus may be standing at the corner in the dark. That schedule is not the product of research into how young people learn; it is the product of bus routes, athletic calendars, and habit. No middle or high school should begin its day before 8:30 in the morning.

The usual reply is that tired students should simply go to bed earlier. But the difficulty is biological, not a failure of willpower. Around the beginning of adolescence, the body's internal clock shifts. Melatonin, the hormone that brings on drowsiness, is released about two hours later in a teenager than in a younger child. A twelve-year-old ordered to fall asleep at nine is being asked to do something her body is actively resisting. Doctors recommend she get at least nine hours. If the alarm rings at six, she cannot get them no matter when she turns off her light.

The effects of chronic sleep loss are not the same as the effects of one bad night. A student who stays up late finishing a project on Tuesday is tired on Wednesday, then recovers. A student who loses an hour or two every night for four years is living with something else entirely. Sleep is when the brain files away what it learned during the day, so students who are short of it remember less and react more slowly. Older ones are likelier to crash a car.

We need not guess what a later start would do, because districts have already tried it. When two high schools in Seattle moved their opening bell from 7:50 to 8:45, researchers had students wear wrist monitors that recorded when they were actually asleep, before the change and after. The students did not simply stay up later to spend the extra time; they slept about half an hour more each night. Grades in the course studied rose, and at one school attendance improved and students arrived late less often.

The serious objections are practical ones, and they deserve a serious answer. A later dismissal squeezes athletic practice, after-school jobs, and the care of younger siblings. Buses are the largest obstacle, because most districts save money by sending the same buses out twice, carrying the older students first. But that order is a choice, not a law of nature. Districts that have reversed it, collecting elementary students first, report that the arrangement works, and it suits the biology, since younger children wake early on their own.

Rewriting a bell schedule is inconvenient. But inconvenience is a poor argument against a policy that would leave students healthier, safer, and better prepared to learn. We should stop asking adolescents to be alert at an hour when their bodies are still asleep.

25 MAIN IDEA

The passage is best described as an argument that

- (A) students who have trouble falling asleep should be excused from their earliest classes
- (B) districts should spend more on buses so that older students can be carried to school later
- (C) the start times of most middle schools were chosen with the health of students in mind
- (D) schools should open later, since early bells fight adolescent biology and the obstacles can be answered

26 SUPPORTING IDEAS

According to the passage, adolescents have trouble falling asleep early because

- (A) they spend too much of the evening on schoolwork
- (B) they wake later in the morning than younger children do
- (C) melatonin is released about two hours later in them than in younger children
- (D) they nap after school and are not tired at night

27 VOCABULARY

As used in line 18, the word "chronic" most nearly means

- (A) unusually severe
- (B) impossible to explain
- (C) continuing over a long period
- (D) sudden and unexpected

28 SUPPORTING IDEAS

The passage reports that after the two Seattle high schools moved their opening bell, students

- (A) went to bed about half an hour earlier than they had before
- (B) slept about half an hour longer each night
- (C) felt more rested but earned the same grades as before
- (D) stayed up later and so gained no additional sleep

29 ORGANIZATION / LOGIC

The fifth paragraph (lines 34–42) serves mainly to

- (A) supply the scientific evidence on which the author's proposal rests
- (B) explain why most districts have refused to consider the change
- (C) raise the practical difficulties of the author's proposal and argue that they can be solved
- (D) admit that the author's proposal would cost more than most districts can afford

30 INFERENCE

The author would most likely regard a district that moved its middle school start time from 7:30 to 8:00 as having

- (A) solved the problem the passage describes
- (B) ignored the evidence gathered in Seattle
- (C) placed athletic schedules ahead of student health
- (D) made a change in the right direction but not a large enough one

PASSAGE 6 · QUESTIONS 31–36

Above ten thousand feet in the White Mountains of eastern California, the forest thins until the trees stand apart from one another like figures on an empty stage. The ridge underfoot is pale, almost white, a chalky rock called dolomite, and the soil
5 that crumbles off it is thin, dry, and inhospitable, so poor that almost nothing else takes root nearby. Snow falls in winter, and the wind carries most of it away again. It looks like a place where nothing could last a decade.

It is where the oldest single living things on earth are standing.
10 Great Basin bristlecone pines grow on this ridge, and the oldest of them whose rings have been counted are more than 4,800 years old. A bristlecone that sprouts this spring will not be considered old in the year 4000. Trees alive up here today were already alive when the first pyramids rose in Egypt.

The reason is a paradox: what is hard on these trees is good for them. In such thin air and thinner soil, a bristlecone may widen
15 by less than an inch in a century. That slowness builds wood of extraordinary density, packed with resin, too hard for insects to bore into and too resinous for fungi to digest. The barren ground
20 helps in a second way. Because so little grows in the gaps between them, a fire started by lightning tends to burn one tree and then find nothing to feed on.

An ancient bristlecone looks, at first glance, mostly dead, and in a sense it is. When a root dies, the strip of bark directly above
25 it dies too, and so do the branches that strip once supplied. What is left on the oldest trees is a ribbon of living bark no wider than a belt, winding up a trunk that is otherwise bare wood, feeding a single crown of needles at the top. The tree does not die all at once. It retreats, surrendering limb after limb, and
30 keeps hold of what it can.

The bare wood does not rot away, because at this altitude there is neither the warmth nor the moisture that decay requires. Instead the wind scours it with ice and grit, year upon year, until the
35 surface is smooth and faintly golden, polished like the handle of a tool worn down by generations of hands. Trunks that died three thousand years ago are still standing.

That dead wood turns out to be useful. Every ring is one year of growth, wide in a generous year and narrow in a hard one. By
40 matching the ring patterns in dead wood to those in living trees, scientists have pieced together an unbroken record of conditions on this ridge reaching back nearly nine thousand years. It is a history written by trees that were never asked to keep it.

31 MAIN IDEA

The passage is primarily concerned with

- (A) the methods scientists use to match the ring patterns in dead wood against those in living trees
- (B) how the same conditions that keep these trees small also preserve them for thousands of years
- (C) the danger that lightning fires now pose to the last surviving bristlecone pines
- (D) the discovery that the oldest single living things on earth stand on this ridge

32 VOCABULARY

As used in line 5, the word "inhospitable" most nearly means

- (A) rocky and uneven
- (B) poisonous to animals
- (C) unwelcoming to growing things
- (D) unfamiliar to scientists

33 SUPPORTING IDEAS

According to the passage, the extraordinary density of a bristlecone's wood is chiefly a result of

- (A) how slowly the tree grows in thin air and poor soil
- (B) resin that insects leave behind inside the trunk
- (C) the ice and grit that the wind drives against it
- (D) the weight of snow the trunk must carry each winter

34 ORGANIZATION / LOGIC

The statement that a fire started by lightning "tends to burn one tree and then find nothing to feed on" (lines 21–22) is offered mainly as

- (A) evidence that lightning rarely strikes at this altitude
- (B) an explanation of why bristlecones grow so far apart from one another
- (C) a warning about the greatest threat these trees now face
- (D) a second way in which the poverty of the ground works in the trees' favor

35 INFERENCE

The passage suggests that scientists could not have assembled a nine-thousand-year record of past conditions from a forest growing in a warmer, wetter place mainly because

- (A) lightning would strike such a forest far more often than it strikes the ridge
- (B) trees in rich soil add more than one ring in a year, so the count could not be trusted
- (C) the wood of the trees that died there would rot away long before its rings could be measured
- (D) without wind to scour it, the surface of the wood there would never be smooth enough to read

36 TONE / STYLE / FIGURATIVE LANGUAGE

In lines 34–35, the author compares the surface of the bare wood to "the handle of a tool worn down by generations of hands" mainly to suggest

- (A) how long the wind has been at work smoothing that surface
- (B) that people living nearby once carved the wood into tools
- (C) that the wood has grown fragile and is close to crumbling
- (D) that the trees are more useful to people than they appear to be

STOP

If you finish before time is called, check your work in this section only. Don't turn to another section.

SECTION 4 OF 5

4 Mathematics Achievement

47 questions • 40 minutes

DIRECTIONS

Each question has four answer choices. Work each problem in this test book and choose the best answer. Calculators are not allowed. Figures are drawn as accurately as possible unless a note says otherwise.

1 ALGEBRAIC CONCEPTS

If $4n + 6 = 38$, what is the value of n ?

- (A) 8
- (B) 11
- (C) 28
- (D) 32

2 DECIMALS, PERCENTS, FRACTIONS

A jacket that regularly sells for \$40 is on sale for 15% off the regular price. What is the sale price of the jacket?

- (A) \$6
- (B) \$25
- (C) \$34
- (D) \$46

3 WHOLE NUMBERS

In a board game, Priya's score is -4 points. On her next turn she earns 17 points. What is Priya's score, in points, after that turn?

- (A) -21
- (B) -13
- (C) 13
- (D) 21

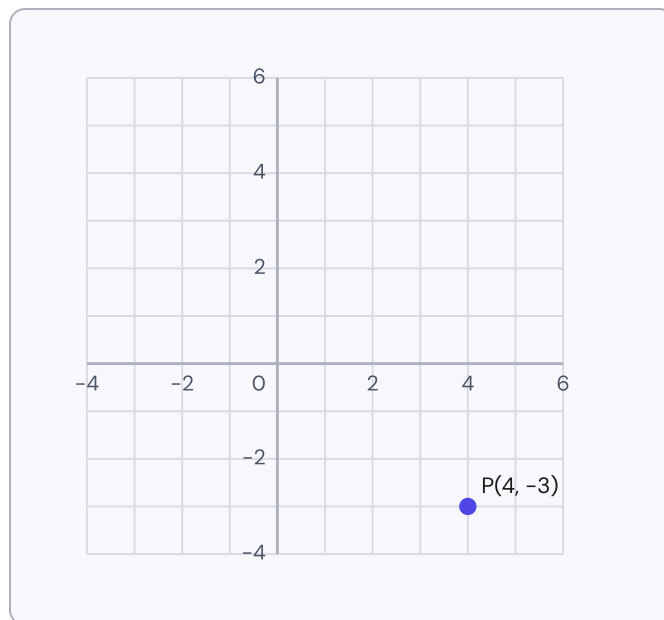
4 DATA ANALYSIS AND PROBABILITY

Five students reported the number of books they read last month: 7, 9, 10, 14, 20. What is the mean number of books read?

- (A) 10
- (B) 12
- (C) 13
- (D) 15

5 GEOMETRY

The grid below shows a single plotted point, P.

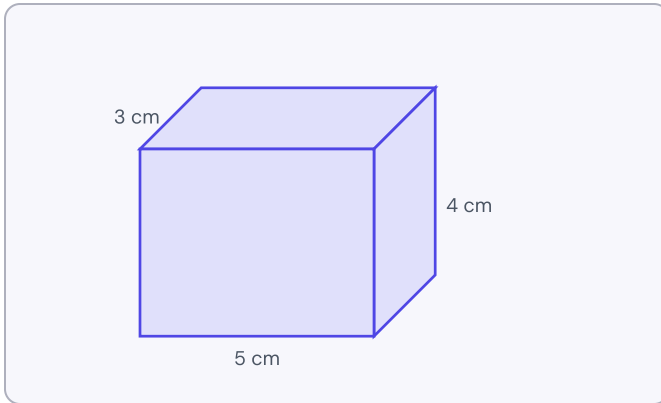


Point P is reflected across the x-axis. What are the coordinates of the image of point P?

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

6 MEASUREMENT

The closed rectangular box below is labeled with its three dimensions.



What is the volume of the box, in cubic centimeters?

- (A) 12
- (B) 20
- (C) 60
- (D) 94

7 ALGEBRAIC CONCEPTS

If $x = 5$ and $y = -3$, what is the value of $2x - 4y$?

- (A) -18
- (B) -2
- (C) 9
- (D) 22

8 DECIMALS, PERCENTS, FRACTIONS

What is the value of $2/5 + 1/3$?

- (A) $2/15$
- (B) $1/5$
- (C) $3/8$
- (D) $11/15$

9 WHOLE NUMBERS

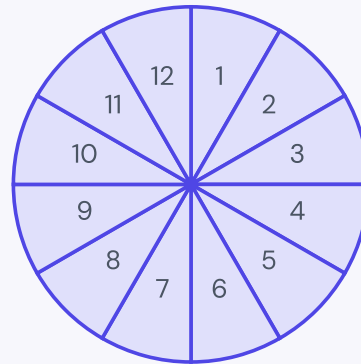
What is the greatest common factor of 24 and 36?

- (A) 6
- (B) 12
- (C) 24
- (D) 72

10 DATA ANALYSIS AND PROBABILITY

The spinner below is divided into 12 equal sections, numbered 1 through 12.

SPINNER



12 sections, all equal in size

If the spinner is spun once and is equally likely to stop on any section, what is the probability that it stops on a number that is a multiple of 4?

- (A) $1/12$
- (B) $1/4$
- (C) $1/3$
- (D) $3/4$

11 ALGEBRAIC CONCEPTS

The table shows values of x and y .

x	2	3	4	5
y	7	10	13	16

Which rule describes the relationship between x and y for every pair in the table?

- (A) $y = x + 5$
- (B) $y = 3x$
- (C) $y = 3x + 1$
- (D) $y = 4x - 1$

12 DECIMALS, PERCENTS, FRACTIONS

Ana buys 3 notebooks that cost \$2.45 each. She pays with a \$10 bill. How much change should she receive?

- (A) \$2.55
- (B) \$2.65
- (C) \$7.35
- (D) \$17.35

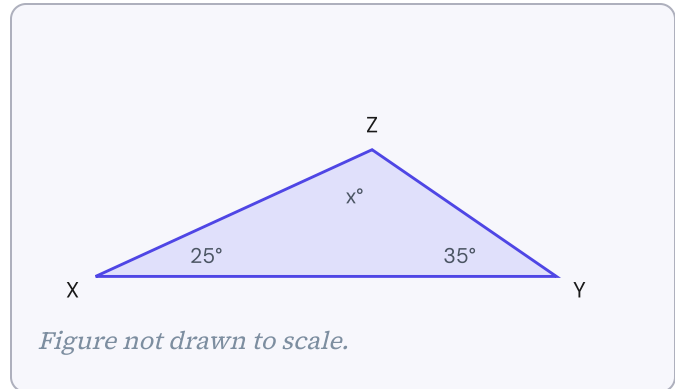
13 WHOLE NUMBERS

Which of the following is the prime factorization of 60?

- (A) $2 \times 2 \times 3 \times 5$
- (B) $2 \times 3 \times 10$
- (C) $2 \times 5 \times 6$
- (D) 4×15

14 GEOMETRY

Triangle XYZ is shown below.



What is the value of x , the measure in degrees of the third angle of the triangle?

- (A) 10
- (B) 60
- (C) 120
- (D) 300

15 MEASUREMENT

A rectangular poster measures 24 inches by 36 inches. What is the area of the poster, in square feet? (1 foot = 12 inches)

- (A) 5
- (B) 6
- (C) 72
- (D) 864

16 DATA ANALYSIS AND PROBABILITY

The table shows the number of pages Dana read each day last week.

Day	Pages read
Monday	12
Tuesday	5
Wednesday	16
Thursday	9
Friday	8

What is the median number of pages Dana read per day?

- (A) 9
- (B) 10
- (C) 11
- (D) 16

17 ALGEBRAIC CONCEPTS

A bicycle repair shop charges a \$16 service fee plus \$8 for each hour of labor. The total charge for one repair was \$64. For how many hours of labor was the customer charged?

- (A) 2
- (B) 6
- (C) 8
- (D) 10

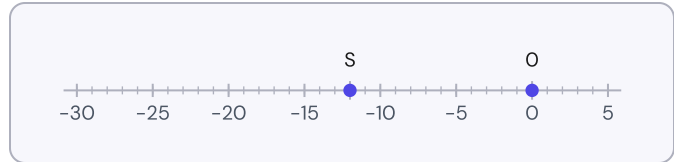
18 DECIMALS, PERCENTS, FRACTIONS

Which of the following lists the values $\frac{3}{5}$, 0.55, 58%, and $\frac{5}{8}$ in order from least to greatest?

- (A) $\frac{3}{5}$, 0.55, 58%, $\frac{5}{8}$
- (B) 0.55, 58%, $\frac{5}{8}$, $\frac{3}{5}$
- (C) 0.55, 58%, $\frac{3}{5}$, $\frac{5}{8}$
- (D) 0.55, $\frac{3}{5}$, $\frac{5}{8}$, 58%

19 WHOLE NUMBERS

A diving bell begins at position S on the number line below, where 0 marks sea level and each unit is 1 meter.



The bell then descends 3 meters each minute for 5 minutes. Which integer represents the position of the diving bell, in meters relative to sea level, at the end of those 5 minutes?

- (A) -27
- (B) -15
- (C) 3
- (D) 27

20 ALGEBRAIC CONCEPTS

The table below shows a pattern.

n	1	2	3	4
Value	6	11	16	21

If the pattern continues, what is the value when $n = 10$?

- (A) 46
- (B) 50
- (C) 51
- (D) 56

21 DATA ANALYSIS AND PROBABILITY

The mean of Rosa's five quiz scores is 18. Her first four scores were 13, 20, 16, and 19. What was her fifth score?

- (A) 4
- (B) 17
- (C) 18
- (D) 22

22 ALGEBRAIC CONCEPTS

What is the value of $20 - 3(x + 2)$ when $x = 4$?

- (A) 2
- (B) 8
- (C) 10
- (D) 18

23 DECIMALS, PERCENTS, FRACTIONS

In a club of 48 students, $\frac{1}{3}$ of the students are in Grade 7 and 25% of the students are in Grade 8. The rest of the students are in Grade 6. How many of the club's students are in Grade 6?

- (A) 4
- (B) 20
- (C) 28
- (D) 32

24 GEOMETRY

Which of the following figures has exactly two lines of symmetry?

- (A) A rectangle that is not a square
- (B) A square
- (C) An equilateral triangle
- (D) A regular pentagon

25 MEASUREMENT

On a scale drawing of a classroom, 1 centimeter represents 4 meters. On the drawing, one wall of the classroom is 6.5 centimeters long. What is the actual length of that wall, in meters?

- (A) 10.5
- (B) 24
- (C) 26
- (D) 104

26 WHOLE NUMBERS

What is the least common multiple of 8 and 14?

- (A) 2
- (B) 14
- (C) 22
- (D) 56

27 DATA ANALYSIS AND PROBABILITY

The graph below shows the results of a survey in which each student named one favorite sport.

FAVORITE SPORT



If one of the students surveyed is chosen at random, what is the probability that the student named swimming?

- (A) $\frac{1}{10}$
- (B) $\frac{1}{5}$
- (C) $\frac{2}{5}$
- (D) $\frac{4}{5}$

28 ALGEBRAIC CONCEPTS

The length of a rectangle is 5 inches more than twice its width. The perimeter of the rectangle is 46 inches. What is the width of the rectangle, in inches?

- (A) 3
- (B) 6
- (C) 9
- (D) 17

29 DECIMALS, PERCENTS, FRACTIONS

Grapes cost \$2.50 per pound. Nina buys 3.2 pounds of grapes. What is the total cost of the grapes?

- (A) \$0.80
- (B) \$5.70
- (C) \$7.50
- (D) \$8.00

30 WHOLE NUMBERS

Which of the following pairs of numbers is relatively prime?

- (A) 9 and 16
- (B) 12 and 21
- (C) 14 and 35
- (D) 15 and 25

31 ALGEBRAIC CONCEPTS

If $n/3 - 4 = 6$, what is the value of n ?

- (A) 6
- (B) 10
- (C) 14
- (D) 30

32 DATA ANALYSIS AND PROBABILITY

The table below shows the number of minutes Jordan practiced piano on each day of one week.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Minutes	24	15	40	12	31	19	27

What is the third quartile of this set of data?

- (A) 24
- (B) 27
- (C) 31
- (D) 40

33 GEOMETRY

Triangle ABC has vertices A(-3, 4), B(-3, 1), and C(1, 1) in the coordinate plane. The triangle is first reflected across the x-axis and then translated 2 units to the left. What are the coordinates of the image of vertex A?

- (A) (-5, -4)
- (B) (-3, -4)
- (C) (-1, -4)
- (D) (1, 4)

34 MEASUREMENT

A rectangular box with no top is 2 feet long, 18 inches wide, and 1 foot high. What is the total area, in square feet, of the bottom and the four sides of the box? (1 foot = 12 inches)

- (A) 3
- (B) 6.5
- (C) 10
- (D) 13

35 DECIMALS, PERCENTS, FRACTIONS

A winter coat regularly priced at \$80 is put on sale at 25% off. One week later, the sale price is reduced by an additional 20%. What is the price of the coat after both reductions?

- (A) \$35
- (B) \$44
- (C) \$48
- (D) \$60

36 WHOLE NUMBERS

The number a is a negative integer and the number b is a positive integer. Which of the following must be a negative number?

- (A) $a \times a$
- (B) $a + b$
- (C) $b - a$
- (D) $a - b$

37 ALGEBRAIC CONCEPTS

Maria has 3 times as many stickers as Jon. If Maria gives Jon 10 of her stickers, the two will have the same number of stickers. How many stickers does Maria have now?

- (A) 10
- (B) 15
- (C) 20
- (D) 30

38 DATA ANALYSIS AND PROBABILITY

A bag contains 3 red marbles, 4 blue marbles, and 5 green marbles. One marble is drawn at random and is not put back; it is green. A second marble is then drawn at random. What is the probability that the second marble is green?

- (A) $\frac{1}{3}$
- (B) $\frac{4}{11}$
- (C) $\frac{5}{12}$
- (D) $\frac{5}{11}$

39 DECIMALS, PERCENTS, FRACTIONS

A container is filled with juice to $\frac{3}{4}$ of its capacity. After 6 cups of juice are poured out, the container is filled to $\frac{1}{2}$ of its capacity. What is the capacity of the container, in cups?

- (A) 4.5
- (B) 8
- (C) 12
- (D) 24

40 WHOLE NUMBERS

At 6:00 a.m. the temperature was -8°F . The temperature then rose 3 degrees each hour for 5 hours, after which it fell 4 degrees each hour for 2 hours. What was the temperature, in degrees Fahrenheit, at 1:00 p.m.?

- (A) -1
- (B) 3
- (C) 7
- (D) 15

41 ALGEBRAIC CONCEPTS

The table shows the number of small squares used to build each figure in a pattern.

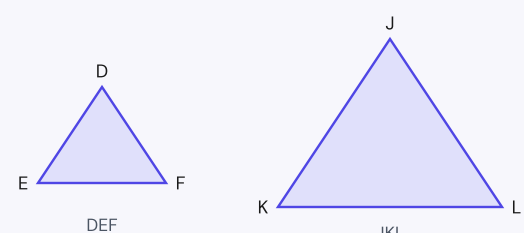
Figure number	1	2	3	4
Number of squares	5	9	13	17

If the pattern continues in the same way, how many small squares are used to build Figure 25?

- (A) 100
- (B) 101
- (C) 105
- (D) 125

42 GEOMETRY

In the figure below, triangle DEF is similar to triangle JKL, and side JK corresponds to side DE.



DEF	DE	8
DEF	EF	12
DEF	DF	10
JKL	JK	20

Triangle DEF ~ Triangle JKL

Figure not drawn to scale.

What is the perimeter of triangle JKL?

- (A) 30
- (B) 60
- (C) 66
- (D) 75

43 MEASUREMENT

The floor of a rectangular room has the dimensions shown below.



Figure not drawn to scale.

Carpet costs \$12 per square meter. What is the total cost of enough carpet to cover the floor of the room exactly?

- (A) \$144
- (B) \$168
- (C) \$180
- (D) \$16,800

44 DATA ANALYSIS AND PROBABILITY

The table shows the quiz scores of 12 students.

Score	6	7	8	9	10
Number of students	1	3	4	2	2

What is the difference between the third quartile and the first quartile of these 12 scores?

- (A) 2
- (B) 4
- (C) 8
- (D) 9

45 DECIMALS, PERCENTS, FRACTIONS

In a class of 30 students, 40% of the students are girls. If 6 more girls join the class and no one leaves, what percent of the class will be girls?

- (A) $33\frac{1}{3}\%$
- (B) 46%
- (C) 50%
- (D) 60%

46 WHOLE NUMBERS

Two whole numbers have a greatest common factor of 6 and a least common multiple of 90. One of the numbers is 18. What is the other number?

- (A) 15
- (B) 30
- (C) 108
- (D) 540

47 ALGEBRAIC CONCEPTS

At a school fair, adult tickets cost \$8 each and student tickets cost \$5 each. A total of 90 tickets were sold, and the money collected from the tickets was \$570. How many adult tickets were sold?

- (A) 40
- (B) 45
- (C) 50
- (D) 60

STOP

If you finish before time is called, check your work in this section only. Then take a 10-minute break before Section 5.

SECTION 5 OF 5

5 Essay

30 minutes · not scored

DIRECTIONS

You have 30 minutes to plan and write an essay on the topic printed below. **Do not write on another topic.** An essay on another topic is not acceptable.

Write your essay in ink on the lined pages provided. You may use the space below the prompt to make notes or plan your essay before you begin writing. Notes made there will not be scored.

You are limited to **two pages**. Write only inside the lines and on both sides of the paper.

YOUR TOPIC

Think about a time when you changed your mind about something important. What made you see the situation differently, and how did the change affect you?

NOTES AND PLANNING (NOT PART OF YOUR ESSAY)**STOP**

Plan in the notes box above, then write your essay on the next two pages. When time is called, the test is over.

QUICK REFERENCE

Answer Key

Correct answers by section. Raw score = number correct; wrong answers cost nothing.

SECTION 1 · VERBAL REASONING

1 A	2 C	3 D	4 A	5 D	6 C	7 D	8 C	9 D	10 A
11 A	12 C	13 A	14 D	15 A	16 A	17 D	18 B	19 C	20 A
21 B	22 B	23 D	24 A	25 B	26 A	27 B	28 B	29 C	30 C
31 B	32 D	33 B	34 C	35 D	36 C	37 B	38 C	39 C	40 D

SECTION 2 · QUANTITATIVE REASONING

1 C	2 A	3 A	4 C	5 D	6 A	7 B	8 C	9 B	10 D
11 C	12 B	13 C	14 B	15 D	16 D	17 A	18 A	19 D	20 B
21 C	22 B	23 A	24 C	25 B	26 D	27 C	28 A	29 C	30 A
31 D	32 C	33 B	34 D	35 A	36 B	37 D			

SECTION 3 · READING COMPREHENSION

1 C	2 B	3 D	4 A	5 A	6 A	7 D	8 B	9 C	10 B
11 D	12 A	13 B	14 C	15 A	16 D	17 C	18 A	19 B	20 B
21 A	22 D	23 B	24 A	25 D	26 C	27 C	28 B	29 C	30 D
31 B	32 C	33 A	34 D	35 C	36 A				

SECTION 4 · MATHEMATICS ACHIEVEMENT

1 A	2 C	3 C	4 B	5 D	6 C	7 D	8 D	9 B	10 B
11 C	12 B	13 A	14 C	15 B	16 A	17 B	18 C	19 A	20 C
21 D	22 A	23 B	24 A	25 C	26 D	27 B	28 B	29 D	30 A
31 D	32 C	33 A	34 C	35 C	36 D	37 D	38 B	39 D	40 A
41 B	42 D	43 B	44 A	45 C	46 B	47 A			

SCORING WORKSHEET

Score your test

Check the answer sheet against the key, count the questions you got right in each section, and fill in the table.
The essay isn't scored.

SECTION	QUESTIONS	NUMBER CORRECT (RAW SCORE)	PERCENT CORRECT
1. Verbal Reasoning	40		
2. Quantitative Reasoning	37		
3. Reading Comprehension	36		
4. Mathematics Achievement	47		

Turn raw scores into an estimated ISEE score. Enter each section's number correct in the free ISEE score calculator at test-ninjas.com/isee-score-calculator-tool and choose the Middle Level and the grade the student is applying to. It estimates the scaled score (760–940), percentile and stanine for each section. ISEE doesn't publish its raw-to-scaled conversion, and percentiles compare each student with recent applicants to the same grade, so treat the result as an estimate.

Reading your results

- **Stanines 7–9** (top 23% of same-grade applicants) are strong; many selective schools look for 7s and above.
- **Stanines 4–6** are the middle 54%; **1–3** are the bottom 23%.
- Compare sections with each other: your lowest section is usually where practice pays off fastest.

Keep your momentum. Review every missed question in the Detailed Answer Key (free with a Test Ninjas account), then practice your weakest section with full-length ISEE tests and explained questions at test-ninjas.com/isee.



TEST NINJAS PRACTICE ASSESSMENT

End of Practice Test

You have reached the end of this document. Review your work only when your instructor or testing conditions allow.

Test Ninjas ISEE® Middle Level Practice Test 1

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