

Ivy Global

ISEE

MIDDLE LEVEL TEST 1

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ISEE MIDDLE LEVEL TEST 1

MARKING INSTRUCTIONS

- Use a #2 or HB pencil only on pages 2 and 3.
- Use a ballpoint pen for your essay on pages 6 and 7.
- Make dark marks that completely fill the circle.
- Erase clearly any mark you wish to change.
- Make no stray marks on this form.
- Do not fold or crease this form.

Correct Mark



Incorrect Marks



1 VERBAL REASONING

- | | | | | | |
|----|---------|----|---------|----|---------|
| 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 | | |

2 QUANTITATIVE REASONING

- | | | | | | |
|----|-----------------|----|-----------------|----|-----------------|
| 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) | | |
| 12 | (A) (B) (C) (D) | 26 | (A) (B) (C) (D) | | |
| 13 | (A) (B) (C) (D) | 27 | (A) (B) (C) (D) | | |
| 14 | (A) (B) (C) (D) | 28 | (A) (B) (C) (D) | | |

3 READING COMPREHENSION

- | | | | | | |
|----|-----------------|----|-----------------|----|-----------------|
| 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) | | |
| 10 | (A) (B) (C) (D) | 24 | (A) (B) (C) (D) | | |
| 11 | (A) (B) (C) (D) | 25 | (A) (B) (C) (D) | | |
| 12 | (A) (B) (C) (D) | 26 | (A) (B) (C) (D) | | |
| 13 | (A) (B) (C) (D) | 27 | (A) (B) (C) (D) | | |
| 14 | (A) (B) (C) (D) | 28 | (A) (B) (C) (D) | | |

4 MATHEMATICS ACHIEVEMENT

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

Essay Topic Sheet

The directions for the Essay portion of the ISEE are printed in the box below. Use the pre-lined pages on pages 6-7 for this part of the Practice Test.

You will have 30 minutes to plan and write an essay on the topic printed on the other side of this page. **Do not write on another topic. An essay on another topic is not acceptable.**

The essay is designed to give you an opportunity to show how well you can write. You should try to express your thoughts clearly. How well you write is much more important than how much you write, but you need to say enough for a reader to understand what you mean.

You will probably want to write more than a short paragraph. You should also be aware that a copy of your essay will be sent to each school that will be receiving your test results. You are to write only in the appropriate section of the answer sheet. Please write or print so that your writing may be read by someone who is not familiar with your handwriting.

You may make notes and plan your essay on the reverse side of the page. Allow enough time to copy the final form onto your answer sheet. You must copy the essay topic onto your answer sheet, on page 3, in the box provided.

Please remember to write only the final draft of the essay on pages 6-7 of your answer sheet and to write it in blue or black pen. Again, you may use cursive writing or you may print. Only pages 6-7 will be sent to the schools.

Directions continue on the next page.

Section 1

Verbal Reasoning

40 Questions

Time: 20 minutes

This section is divided into two parts that contain two different types of questions. As soon as you have completed Part One, answer the questions in Part Two. You may write in your test booklet. For each answer you select, fill in the corresponding circle on your answer document.

PART ONE — SYNONYMS

Each question in Part One consists of a word in capital letters followed by four answer choices. Select the one word that is most nearly the same in meaning as the word in capital letters.

SAMPLE QUESTION:

Sample Answer

CHARGE:

 (A) (B) (C) (D)

(A) release

(B) belittle

(C) accuse

(D) conspire

PART TWO — SENTENCE COMPLETION

Each question in Part Two is made up of a sentence with one blank. Each blank indicates that a word is missing. The sentence is followed by four answer choices. Select the word that will best complete the meaning of the sentence as a whole.

SAMPLE QUESTIONS:

Sample Answer

It rained so much that the streets were _____.

 (A) (B) (C) (D)

(A) flooded

(B) arid

(C) paved

(D) crowded

STOP. Do not go on
until told to do so.



PART ONE – SYNONYMS

Directions: Select the word that is most nearly the same in meaning as the word in capital letters.

- | | |
|---|---|
| <p>1. STREWN
(A) lost
(B) hidden
(C) attached
(D) scattered</p> <p>2. DISCOURSE
(A) deviation
(B) loss
(C) conversation
(D) investigation</p> <p>3. PERSPIRE
(A) sweat
(B) breathe
(C) encourage
(D) inhale</p> <p>4. EXTERIOR
(A) protected
(B) outside
(C) relevant
(D) mysterious</p> <p>5. GENERATE
(A) power
(B) produce
(C) spin
(D) burn</p> | <p>6. GLOSS
(A) soap
(B) illness
(C) luster
(D) shell</p> <p>7. HARMONIOUSLY
(A) aggressively
(B) slowly
(C) cooperatively
(D) strikingly</p> <p>8. PURSUE
(A) browse
(B) escape
(C) chase
(D) discover</p> <p>9. CONFESS
(A) admit
(B) suppose
(C) commit
(D) fail</p> <p>10. WORLDLINESS
(A) orderliness
(B) richness
(C) miseducation
(D) sophistication</p> |
|---|---|

Go on to the next page ➡

11. APEX

- (A) predator
- (B) valley
- (C) equator
- (D) peak

12. COSMIC

- (A) celestial
- (B) unknown
- (C) obscure
- (D) bright

13. HOOKED

- (A) complicated
- (B) captivated
- (C) surrounded
- (D) abusive

14. CALCULATE

- (A) type
- (B) enter
- (C) implicate
- (D) figure

15. SLOPPINESS

- (A) carelessness
- (B) cleverness
- (C) daring
- (D) haplessness

16. BUFFOON

- (A) fool
- (B) pillow
- (C) shrew
- (D) vault

17. STOICALLY

- (A) demonstrably
- (B) powerfully
- (C) indignantly
- (D) unemotionally

18. PROGRESS

- (A) advancement
- (B) impediment
- (C) conclusion
- (D) division

19. SCUTTLE

- (A) scurry
- (B) prowl
- (C) activate
- (D) hassle

20. ATROCIOUS

- (A) perceptive
- (B) massive
- (C) appalling
- (D) indignant

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PART TWO – SENTENCE COMPLETION

Directions: Select the word that best completes the sentence.

21. Local officials produced _____ fishery reports by inflating the figures so that fisheries appeared more productive.
- (A) removed
(B) distinctive
(C) dismissive
(D) fraudulent
22. Once he ran out of reasonable arguments against his opponent's position, the mean-spirited senator resorted to making _____ personal remarks about his opponent.
- (A) disparaging
(B) complimentary
(C) conclusive
(D) decisive
23. In a victory for police and law enforcement the Supreme Court _____ a lower court's ruling, which allowed officers to take DNA samples from arrested suspects.
- (A) proposed
(B) dismissed
(C) upheld
(D) criticized
24. After years of collecting scraps of wood, metal, and machinery, John's garage is a hopeless _____ of odds and ends.
- (A) facade
(B) studio
(C) jumble
(D) clatter
25. Wolfgang Amadeus Mozart published over 600 pieces of music, making him one of the most _____ composers of the Classical era.
- (A) notorious
(B) copious
(C) comprehensive
(D) prolific
26. Although most of the club's members claimed to _____ the policy proposal, it was still passed in a secret ballot.
- (A) endorse
(B) oppose
(C) debate
(D) resolve

Go on to the next page ➡

27. Dean loved his old car, but had to admit that it was too small to be a _____ family vehicle.
- (A) peculiar
(B) sensational
(C) wasteful
(D) practical
28. A cave-dwelling amphibian called the olm can survive for years without food, making it extremely resistant to _____.
- (A) starvation
(B) drought
(C) attack
(D) elimination
29. Karen is often described by her coworkers as a _____ worker who pays careful attention to every detail.
- (A) playful
(B) bickering
(C) diligent
(D) bellicose
30. The commentator's _____ remarks contributed very little to the story and were largely ignored.
- (A) vapid
(B) intriguing
(C) inclusive
(D) explosive
31. Determined to find the exact cause of the accident, forensic engineers conducted an _____ investigation of the wreckage.
- (A) incautious
(B) overwrought
(C) underfunded
(D) exhaustive
32. Sea turtles are _____ aquatic, usually coming onto land only to lay eggs.
- (A) furtively
(B) rarely
(C) predominantly
(D) exclusively
33. Processed foods _____ to contain more artificial preservatives than fresh alternatives, so some dieticians recommend avoiding them.
- (A) prefer
(B) attempt
(C) cease
(D) tend
34. Mark's lack of _____ was demonstrated by his inability to persuade even a single coworker to support his plan for the project.
- (A) influence
(B) courage
(C) adventure
(D) derision

Go on to the next page ➡

35. After projecting steep budget _____, the company was forced to close underperforming stores in an effort to reduce spending and avoid losses.
- (A) negotiations
(B) divisions
(C) deficits
(D) increases
36. The captive tiger _____ to be free and spent most of its time looking for some way to escape its cage.
- (A) hated
(B) compelled
(C) yearned
(D) taught
37. Some medieval monks _____ to live lives of poverty, promising to own nothing and live only off of the charity of their parishioners.
- (A) presumed
(B) menaced
(C) deferred
(D) vowed
38. Male lemurs are normally quite _____, but they become highly aggressive towards other males during their short mating season.
- (A) tactile
(B) various
(C) supernatural
(D) docile
39. A vehicle owner's manual can be a useful _____ on maintenance and simple fixes, but won't teach you how to make major repairs.
- (A) dialogue
(B) category
(C) primer
(D) incident
40. In _____ of the coming tourist season, Percy stocked his shop's shelves with souvenirs and trinkets of the sort that tourists generally buy.
- (A) anticipation
(B) regulation
(C) peril
(D) consternation

Go on to the next page ➡

Section 2

Quantitative Reasoning

37 Questions

Time: 35 minutes

This section is divided into two parts that contain two different types of questions. As soon as you have completed Part One, answer the questions in Part Two. You may write in your test booklet. For each answer you select, remember to fill in the corresponding circle on your answer document.

Any figures that accompany the questions in this section may be assumed to be drawn as accurately as possible EXCEPT when it is stated that a particular figure is not drawn to scale. Letters such as x , y , and n stand for real numbers.

PART ONE — WORD PROBLEMS

Each question in Part One consists of a word problem followed by four answer choices. You may write in your test booklet; however, you may be able to solve many of these problems in your head. Next, look at the four answer choices given and select the best answer.

EXAMPLE 1:

What is the value of the expression $3 + 7 \times (6 - 4)^2 - 8 \div 2$?

- (A) 14
- (B) 16
- (C) 27
- (D) 32

Sample Answer

(A) (B) ● (D)

The correct answer is 27, so circle C is darkened.

Go on to the next page ➡

PART TWO — QUANTITATIVE COMPARISONS

All questions in Part Two are quantitative comparisons between the quantities shown in Column A and Column B. Using the information given in each question, compare the quantity in Column A to the quantity in Column B, and choose one of these four answer choices:

- (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.

EXAMPLE 2:	<u>Column A</u> 5	<u>Column B</u> $\sqrt{25}$	<u>Sample Answer</u> Ⓐ Ⓑ ● Ⓓ
The quantity in <u>Column A</u> (5) is the same as the quantity in <u>Column B</u> (5), so circle C is darkened.			
EXAMPLE 3:	<u>Column A</u> $x = 6^2 - 3 \times 4$ x	<u>Column B</u> 22	<u>Sample Answer</u> ● Ⓑ Ⓒ Ⓓ
The quantity in <u>Column A</u> (24) is greater than the quantity in <u>Column B</u> (22), so circle A is darkened.			

Go on to the next page ➡

PART ONE – WORD PROBLEMS

Directions: Choose the best answer from the four choices given.

1. $\frac{1}{4}, \frac{2}{8}, \frac{3}{12}, \frac{4}{\blacksquare}$

In the number pattern above, $\blacksquare =$

- (A) 10
(B) 12
(C) 16
(D) 20
2. The cost of go-karting is S dollars for the first ten laps around the track and T dollars for each additional lap. What is the cost, in dollars, of go-karting for 17 laps?
- (A) $T + (S \times 7)$
(B) $S + (T \times 7)$
(C) $(S \times 10) + T$
(D) $17 + S + T$
3. If 5 out of 20 students in a class wear glasses, what percentage of the students wears glasses?
- (A) 5%
(B) 15%
(C) 20%
(D) 25%
4. Aaron received x tickets to a concert and divided them equally among himself and four friends. Which of the following expressions shows the number of tickets that each person received?
- (A) $x/4$
(B) $x - 4$
(C) $x - 5$
(D) $x/5$

5. Nathan reads four books in the fall and two books in the winter. In the summer, he reads twice the number of books he reads in the fall. In the spring, he reads half the number of books he reads in the fall. If he continues to read at the same rate, how many books will he read in two full years?
- (A) 16
(B) 18
(C) 24
(D) 32

6. In Figure 1, the radius of the circle is 4. If a line segment is drawn inside the circle so it does not extend beyond the circle's outer edge, the line segment could have any of the following lengths EXCEPT:

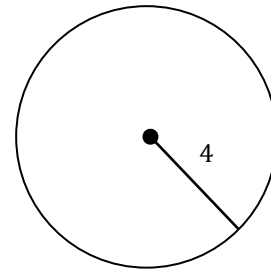


Figure 1

- (A) 10
(B) 8
(C) 6
(D) 4

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Questions 7-8 are based on the graph in Figure 2.

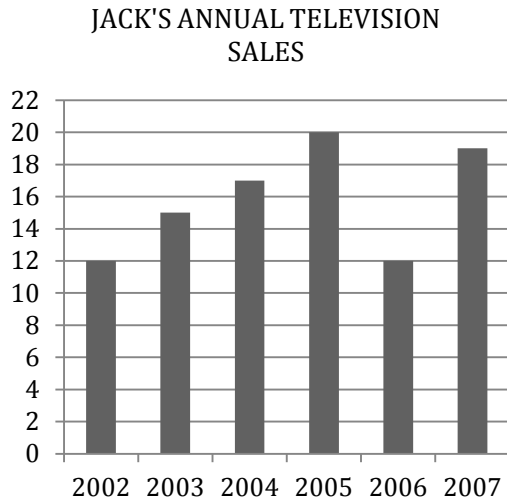


Figure 2

7. Which of the following statements is correct?
- (A) The number of televisions sold in 2004 was exactly double the number of televisions sold in 2002.
- (B) The same number of televisions was sold in 2005 as in 2007.
- (C) The number of televisions sold in 2007 was more than twice the number of televisions sold in 2003.
- (D) None of the above statements are correct.
8. In 2006, the employee of the year sold 36 televisions. In 2006, Jack's television sales were what fraction of the employee of the year's sales?
- (A) $\frac{1}{2}$
- (B) $\frac{1}{3}$
- (C) $\frac{2}{3}$
- (D) $\frac{3}{5}$

9. In Figure 3, $LMNO$ is a square. If the length of KL is 8 and the length of LO is 3, what is the area of the rectangle $JKMN$?

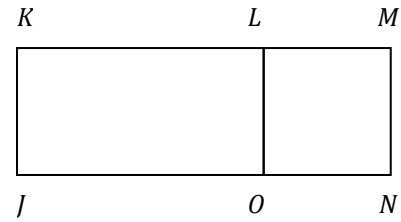
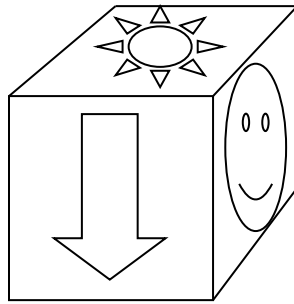


Figure 3

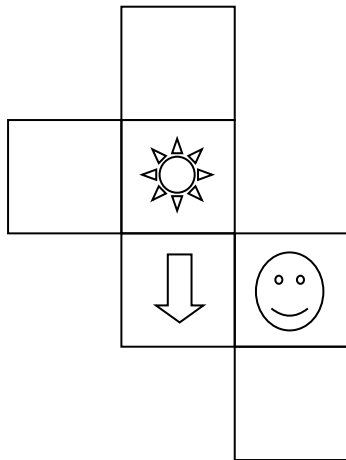
- (A) 24
- (B) 28
- (C) 33
- (D) 36
10. Which number is closest to the square root of 180?
- (A) 10
- (B) 13
- (C) 18
- (D) 20
11. How many fifths are there in $5\frac{2}{5}$?
- (A) 2
- (B) 5
- (C) 25
- (D) 27

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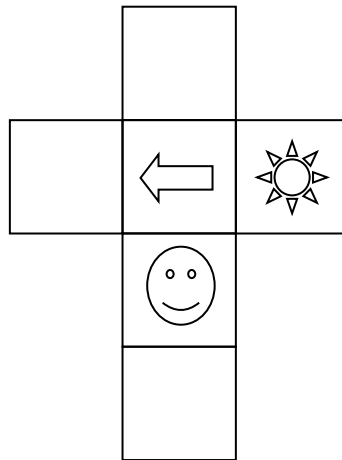
12. Which is a possible net for this cube?



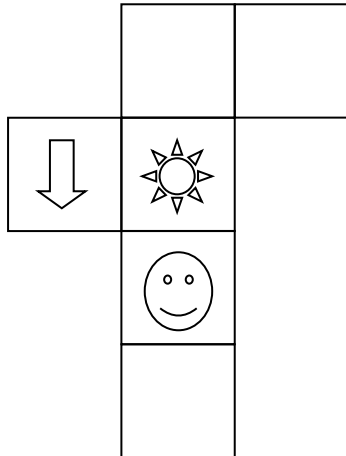
(A)



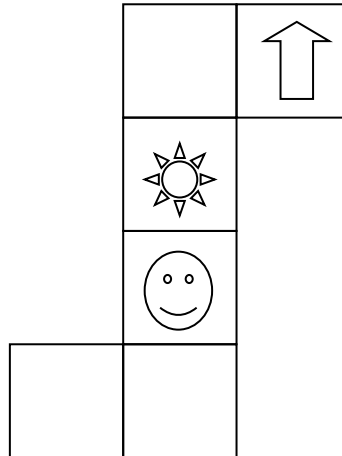
(C)



(B)



(D)



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13. In Figure 4, an empty wine glass is shown placed upside down. Which of the following shows all of the points where the glass touches the table?

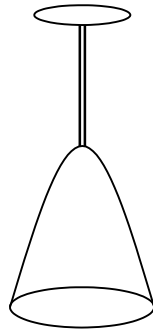
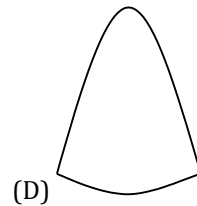
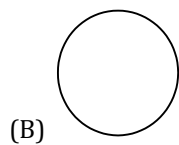
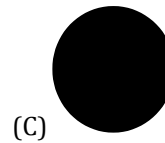


Figure 4



14. $258 \times 72 =$

- (A) 18,576
 (B) 18,060
 (C) 17,294
 (D) 17,292

15. The perimeter of a triangle is 23 cm. All the side lengths are integers. If one side measures 5 cm, what is the length of the largest possible side?

- (A) 9 cm
 (B) 11 cm
 (C) 12 cm
 (D) 15 cm

16. Which of the expressions below has the greatest value?

- (A) 30% of 600
 (B) $\frac{1}{3}$ of 600
 (C) 0.33 of 600
 (D) $\frac{1}{4}$ of 600

17. Paige has 5 more toys than Jordan and 8 more toys than Bill. Altogether, the three friends have 20 toys. How many toys does Jordan have?

- (A) 6
 (B) 8
 (C) 11
 (D) 16

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18. Which of the following equations best represents the relationship described by the table?

Day (D)	Number of apples on the ground (A)
1	7
2	13
3	19
4	25
5	31

- (A) $A = 6D$
(B) $A = 7D$
(C) $A = 6D + 1$
(D) $4A = 25D$

19. Alicia's math quizzes are graded on a scale from 0 to 10. Her average on three quizzes is a 6. Her final math quiz will be counted twice towards her average. What does she need to score on her final quiz in order to raise her average score to a 7?

- (A) 7
(B) 7.5
(C) 8
(D) 8.5

20. $\frac{1}{4}$ of which expression is greatest?

- (A) $A - 1$
(B) A
(C) $A + 3$
(D) $\frac{A}{3} + 1$

21. A small cube has side lengths of 2 cm. A large cubic box can fit 8 of these small cubes inside of it with no extra space. How many cubes with side lengths of 1 cm could fit inside the large cubic box, leaving no extra space?

- (A) 8
(B) 16
(C) 32
(D) 64

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PART TWO – QUANTITATIVE COMPARISONS

Directions: Using the information given in each question, compare the quantity in column A to the quantity in Column B. All questions in Part Two have these answer choices:

- (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.

	<u>Column A</u>	<u>Column B</u>
22.	$3 + 4 \times 5 + 6$	$4 + 3 \times 5 + 11$

$$x \blacksquare y = \frac{x + y}{x}$$

	<u>Column A</u>	<u>Column B</u>
23.	$3 \blacksquare 8$	$8 \blacksquare 3$

	<u>Column A</u>	<u>Column B</u>
24.	$\sqrt{100 - 36}$	$\sqrt{100} - \sqrt{36}$

The sum of 3 consecutive integers is 30.

	<u>Column A</u>	<u>Column B</u>
25.	The largest of these integers	10

Michael drives at 30 miles per hour for two hours. He then drives at 40 miles per hour for one hour.

	<u>Column A</u>	<u>Column B</u>
26.	Michael's average speed for all three hours	35 miles per hour

$$y = 5x - 12$$

	<u>Column A</u>	<u>Column B</u>
27.	The slope of the line	The value of y when $x = 3$.

Tina is stacking cubes to make a tower. Each cube has a side length of either 3 cm, 4 cm, or 5 cm.

	<u>Column A</u>	<u>Column B</u>
28.	The smallest number of cubes required for a tower that is 27 cm tall	6

A bag contains 3 yellow marbles, 5 blue marbles, and 7 red marbles.

	<u>Column A</u>	<u>Column B</u>
29.	The probability of choosing a yellow marble followed by a red marble	The probability of choosing a red marble followed by a yellow marble

A , B , C , and D lie on a line in that order. $AC = 10$ and $BD = 8$.

	<u>Column A</u>	<u>Column B</u>
30.	BC	4

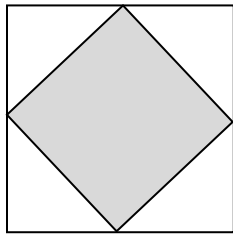
Ryan makes $\frac{4}{5}$ of his basketball shots.

	<u>Column A</u>	<u>Column B</u>
31.	The number of shots he makes after 15 tries	The number of shots he misses after 80 tries

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A fair coin has an equal probability of landing on heads or tails when it is flipped. A fair die has an equal probability of landing on a 1, 2, 3, 4, 5, or 6 when it is rolled.

- | | <u>Column A</u> | <u>Column B</u> |
|-----|---|--|
| 32. | The probability of flipping tails with a fair coin and then rolling a 3 with a fair die | The probability of rolling an even number and then rolling an odd number with a fair die |



Each corner of the small square divides a side length of the large square into two equal pieces.

- | | <u>Column A</u> | <u>Column B</u> |
|-----|-------------------------------|---------------------------------|
| 33. | The area of the shaded region | The area of the unshaded region |

- | | <u>Column A</u> | <u>Column B</u> |
|-----|---|---|
| 34. | The price of a \$50 sweater sold at $x\%$ off | The price of a \$40 sweater sold at $y\%$ off |

- | | <u>Column A</u> | <u>Column B</u> |
|-----|--|---|
| 35. | The slope of the line
$5x + 10y = 12$ | The slope of the line that goes through (3, 4) and (6, 1) |

An apple orchard charges either \$24 for a bag that can hold up to 50 apples, or \$0.50 per individual apple. James needs to purchase 50 apples to make apple cider for his family.

- | | <u>Column A</u> | <u>Column B</u> |
|-----|---|---|
| 36. | The price of buying a bag to fill with 50 apples. | The price of buying 50 apples individually. |

- | | <u>Column A</u> | <u>Column B</u> |
|-----|-----------------|-----------------|
| 37. | 2^2 | $\sqrt{16}$ |

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Section 3

Reading Comprehension

36 Questions

Time: 35 minutes

This section contains six short reading passages. Each passage is followed by six questions based on its content. Answer the questions following each passage on the basis of what is stated or implied in that passage. You may write in your test booklet.

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Questions 1–6

1 The Great Library of Alexandria was a
2 marvel of ancient Egypt and of human
3 achievement. Established during the Hellenistic
4 period sometime between 324 and 246 BCE,
5 under Ptolemy I or perhaps Ptolemy II, the
6 Library was reputedly an architectural wonder.
7 More importantly, the Library housed a vast
8 collection of works from all across the ancient
9 world and was a major center of scholarship.
10 The Library was charged with the ambitious
11 mission of collecting all of the world’s books,
12 and it employed numerous methods to acquire
13 new works. A well-funded acquisitions
14 department scoured the book fairs of Rhodes
15 and Athens, purchasing individual texts or even
16 whole libraries. Ships that landed at the harbor
17 of Alexandria were searched for books, and the
18 books were confiscated and copied. The copies
19 were returned to the owners of the originals,
20 but the originals were kept in the library. The
21 Library also employed a number of scholars
22 who produced original works on Astronomy,
23 Mathematics, Physics, and many other subjects.
24 The scribes and scholars of the Great
25 Library not only collected books and conducted
26 research; they also assembled collections and
27 translated texts from around the world into
28 Greek. Many of the works translated or
29 assembled at Alexandria survive to this day:
30 some of the first translations of Biblical texts

31 into Greek may have occurred in the time of
32 Ptolemy I at the Library of Alexandria, although
33 the canonical versions would not be created for
34 some hundreds of years more. In addition,
35 much work was done to compile and edit
36 authoritative versions of the Homeric myths
37 for which the Greeks are so well known today.
38 These texts have played a fundamental role in
39 shaping our culture for hundreds of years, and
40 were only a few of the great works of
41 translation and editing that took place in
42 Alexandria in the Hellenistic period.

43 It is ironic that the fate of the Great
44 Library—an institution dedicated to the
45 collection and preservation of knowledge—is
46 shrouded in myth and mystery. Many sources
47 say it burned down, but they cannot agree
48 upon a date. It may have been burned more
49 than once, either by accident or intentionally.
50 Smaller sister institutions may have survived
51 the original library, only to be destroyed later.
52 The Great Library, or some version of it, could
53 have survived for anywhere from 300 to 1,000
54 years. Though the Library no longer stands,
55 there is little doubt that the scholarship of the
56 Great Library has had a great and lasting
57 impact on history. The works that were kept,
58 translated, or created there have had a
59 profound influence on our culture even to the
60 present day.

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1. Which sentence best expresses the main idea of the passage?
 - (A) The mysterious demise of the Great Library should serve as a warning to future generations.
 - (B) As the history of the Great Library shows, the confiscation of private property can sometimes be justified if it serves the common good.
 - (C) The Great Library was an impressive institution, which played an important role in shaping history and culture.
 - (D) The translation of existing works into a familiar language can be just as important as creating original works.

2. The author of this passage would most likely agree that
 - (A) The Great Library most likely survived for only about 300 years.
 - (B) The ultimate fate of the Great Library should always remain a mystery.
 - (C) The preservation and advancement of knowledge is very important.
 - (D) It is very surprising that ancient people were concerned about preserving books.

3. In line 33, “canonical” most nearly means
 - (A) original.
 - (B) translated.
 - (C) ancient.
 - (D) official.

4. Which best states the main point of the second paragraph (lines 24-42)?
 - (A) Ancient books were usually based on oral history.
 - (B) Even historically important texts are only useful once they’ve been translated into a familiar language.
 - (C) The scholars of the Great Library were more interested in editing existing works than in creating new ones.
 - (D) In addition to their other activities, the scholars of the Great Library translated and edited many important texts.

5. What does the author suggest is the main problem with theories about the destruction of the Great Library?
 - (A) There are no surviving eye-witnesses to give an account of the Great Library’s destruction.
 - (B) All of the historical records are in Ancient Greek, which it is difficult for modern researches to translate.
 - (C) There is some reason to believe that the Great Library may still exist somewhere in Alexandria.
 - (D) There are many conflicting stories, and the details vary widely among accounts.

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6. Which best describes the organization of the passage?
- (A) The author relates a personal story about his experience with a real place, and describes the historical context.
 - (B) The author describes a theory, discusses the evidence, and examines opposing viewpoints.
 - (C) The author describes the founding of a historical institution, its role in ancient society, and its decline or destruction.
 - (D) The author relates a story about the ancient world, and discusses its origins.

Questions 7–12

1 An early 19th century understanding of
2 the laws of gravitation predicted certain orbits
3 for each of the planets, and as a general rule the
4 seven planets known at that time politely
5 observed these orbits. Yet there was an
6 exception: Uranus, at the far outer reaches of
7 the solar system, refused to behave as
8 predicted. The irregularity of Uranus’s orbit
9 posed a problem for scientists: the data did not
10 match their models for how the planets should
11 behave.

12 Some believed the model must be
13 modified, speculating that the effect of the
14 sun’s gravity simply changed at such extreme
15 distances. Others were convinced that the data
16 was flawed; they believed it was more likely
17 that astronomers had botched their
18 observations than that current models of
19 gravitation and planetary orbits— which so
20 elegantly predicted the motions of other
21 orbiting bodies— were wrong. Still, it was
22 possible that the model was correct and the
23 observations had been accurate, but that the
24 data was incomplete. Those who believed this

25 to be the case took the position that some as-
26 yet-undiscovered object in the outer solar
27 system was perturbing the orbit of Uranus, and
28 that the discovery of that object would explain
29 the eccentric orbit of Uranus.

30 If this theory was correct, it meant that
31 there was a large orbiting body waiting to be
32 discovered in the outer solar system, and at
33 least two scientists—John Adams Couch and
34 Urbain Jean-Joseph Le Verrier— worked
35 separately to calculate the position of such a
36 body. By 1846, they had calculated the mass,
37 orbit, and position of what would soon be
38 recognized as the newest planet, using only
39 theories of gravitation and observations of the
40 orbit of Uranus. With the calculations done,
41 astronomers pointed their telescopes to the
42 location in the night sky where Couch and Le
43 Verrier had predicted the planet could be
44 found, and in a dramatic confirmation of their
45 work, Neptune could be observed directly in its
46 distant orbit at the outer edge of our solar
47 system.

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7. Which sentence best summarizes the main point of the passage?
- (A) Uranus is probably the most important planet, because it helped us to understand more about our solar system than any other planet.
 - (B) Astronomers need more help making accurate measurements, because too often poor data leads to false conclusions.
 - (C) Just when we think we know everything about our solar system, we often make chance discoveries, such as the observation of the planet Neptune.
 - (D) While there were several possible explanations for the strange behavior of Uranus, scientists ultimately proved that the best explanation was a previously unknown planet.
8. In lines 4-5, “politely observed these orbits” can be best interpreted to mean that the planets
- (A) behaved according to known rules.
 - (B) were easy to observe in the night sky.
 - (C) revolved around the sun quietly.
 - (D) rarely changed their orbits.
9. The theory described in lines 24-29 proposed that
- (A) the effects of the sun’s gravity are different in the outer solar system.
 - (B) some other object was altering the orbit of Uranus.
 - (C) observations of the orbit of Uranus must be wrong.
 - (D) the seven known planets had predictable orbits.
10. Based on the context, “perturbing” (line 27) most nearly means
- (A) eliminating.
 - (B) circling.
 - (C) disturbing.
 - (D) alarming.
11. The passage provides evidence to support which of the following statements?
- (A) An understanding of the laws of physics allows scientists to make accurate predictions about the universe.
 - (B) Most of the planets of our solar system have been known since ancient times.
 - (C) John Adams Couch was primarily responsible for the discovery of Neptune.
 - (D) We have good reason to believe that there may be more planets waiting to be discovered in the outer solar system.

12. Which sentence best describes how the article is organized?
- (A) A hypothesis is proposed, the evidence is considered, and it is concluded that the original hypothesis was correct.
 - (B) A problem is introduced, several possible solutions are discussed, and the correct solution is identified and explained.
 - (C) A problem is introduced, and possible methods for finding a solution are discussed, but no conclusion is reached.
 - (D) Two scientists are named, their competition to solve a problem is discussed, and the one who ultimately made the greatest contribution is celebrated.

Questions 13–18

1 Oceans cover most of Earth's surface,
2 and in their depths dwells most of the planet's
3 life. We are drawn to certain aspects of the
4 ocean, yet most of the marine world is alien to
5 us. Just offshore, coral reefs dazzle us with rich
6 colors and complex ecosystems. Reef fish are
7 often quite beautiful, displaying a stunning
8 variety of colors and patterns, and are a
9 favorite choice for fish tanks. However, some
10 parts of the ocean are less familiar to us. Kelp
11 forests—thick, dizzying mazes of life—provide
12 food for snails and urchins, which in turn are a
13 source of food for otters, rockfish, and other
14 predatory animals. Far out beyond the coast,
15 where waves tower over ships, whales and
16 massive fish graze on microscopic plankton,
17 extracting their sustenance from what appears
18 to the naked eye to be nothing but water. And
19 deep down, beyond the continental shelf,
20 beyond the warming rays of the sun, lie the
21 abyssal plains.

22 Here flat grey plains of ooze stretch over
23 incredible distances, shrouded in darkness, fed
24 by a constant rain of decaying matter from the
25 seas above. At first glance, these appear to be
26 dead, empty places, but in truth they teem with
27 life. Most of the life on the abyssal plains is
28 bacterial, but there are larger creatures there
29 too. Deep sea corrals grow in the abyssal
30 plains, anchoring themselves to the sea floor.

31 There are also less familiar forms of life, like
32 the giant isopod and the sea pig. The giant
33 isopod is a crustacean, like a shrimp or lobster,
34 but it resembles a pill-bug, and can grow to be
35 more than a foot long. The sea pig is a kind of
36 sea cucumber. Most sea cucumbers resemble
37 slugs, but the sea pig has developed small
38 tubular legs and walks along the sea floor. It
39 gets its name from these legs and from its soft
40 pink flesh. There are fish, too, like the tripod
41 fish which uses long thin fins to perch on top of
42 the ooze, or the anglerfish which uses a
43 glowing rod-like appendage to lure prey into
44 its hungry jaws. And there must be much more
45 than we yet know; although this vast region
46 covers more than half of the entire solid
47 surface of the planet, it is one of the most
48 poorly explored places on Earth.

49 We have explored less than 1% of the
50 area covered by the abyssal plains, and most of
51 that exploration has been conducted by
52 remotely operated vehicles. Although we do
53 have small submarines capable of carrying
54 people to the depths of the ocean, fewer people
55 have gone to the abyssal plains than have gone
56 into space. This deep frontier, vast and
57 mysterious, will surely yield many new
58 discoveries in years to come if we only go and
59 look for them.

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13. Which sentence best summarizes the author's main idea in this passage?
- (A) Plankton are an essential part of ocean food chains even in the deepest areas.
 - (B) We should invest more in exploring the ocean than in exploring space.
 - (C) The ocean is a strange and wonderful place which is not yet fully explored.
 - (D) We don't know very much about space and the oceans.
14. Which best states the main point of the first paragraph (lines 1-21)?
- (A) People should spend more time in the ocean so that it will seem less alien.
 - (B) Coral reefs are probably the most beautiful part of the ocean.
 - (C) The earth's oceans contain a great variety of organisms and environments.
 - (D) The abyssal plains are the deepest parts of the ocean.
15. As it is used in line 17, "sustenance" most nearly means
- (A) activity.
 - (B) reproduction.
 - (C) nourishment.
 - (D) body size.
16. What is the author's purpose in pointing out that "fewer people have gone to the abyssal plains than have gone into space" (lines 54-56)?
- (A) To highlight how dangerous the abyssal plains are for human beings.
 - (B) To support the idea that there is a great deal of exploration left to be done in the abyssal plains.
 - (C) To suggest that there is an unfair lack of funding for marine exploration compared to space exploration.
 - (D) To imply that it is more difficult to reach the ocean floor than it is to get into space
17. The author's attitude toward the ocean could best be described as
- (A) fascinated.
 - (B) ambivalent.
 - (C) stern.
 - (D) indifferent.
18. The passage implies that rockfish and otters
- (A) only feed on snails.
 - (B) are both predators.
 - (C) are more familiar than most sea creatures.
 - (D) feed on the kelp that grows in kelp forests.

Questions 19–24

1 In 18th century France, the masses
2 suffered greatly and ate poorly. The main
3 staple of the common diet was bread, and half
4 of the paltry income of the regular French
5 citizen was dedicated to acquiring this simple
6 commodity. As crops failed, shortages
7 occurred, compounding the suffering of the
8 poor. But while the common people suffered in
9 the streets, the privileged classes, cloistered
10 away in opulent mansions, ate and drank
11 luxuriously in their private worlds of wealth
12 and pleasure.

13 The stark inequalities of the era did not
14 escape the notice of the poor, and a smoldering
15 resentment built among them, later to be
16 expressed in a conflagration of violence and
17 rebellion. Indeed, the lavish lifestyles of the
18 aristocracy may have had even more to do
19 with the coming of revolution than the
20 troubles of the peasantry.

21 Upon hearing of the agonies of the
22 people, that they had “no bread to eat,” Marie
23 Antoinette, then Dauphine and later Queen of
24 France, is reputed to have replied, “Let them
25 eat cake!” The utterance acquired a great
26 symbolic importance in the aftermath of the
27 French Revolution, when historians used it to
28 illustrate the ignorance and indifference of the

29 upper classes to the suffering of the poor. The
30 story expressed the feelings of the people,
31 spoke clearly and powerfully to the sentiment
32 of the time, and agreed with the judgment of
33 the Revolutionary Tribunal that the Dauphine
34 was a traitor to the people— a judgment which
35 would lead her to the guillotine. It is an
36 excellent tale, but it does have one minor flaw:
37 it is almost certainly not true.

38 It is, at the very least, a misattribution,
39 but very likely a total fabrication. It appeared
40 first in *Confessions*, the autobiography of Jean-
41 Jacques Rousseau, attributed only to a “great
42 princess.” Rousseau’s *Confessions* was not
43 noted for its reliability, and even if we take the
44 tale to be true, it would almost certainly have
45 been written while Marie Antoinette was still
46 only a small child.

47 Alas, a good story’s survival rarely rests
48 on whether or not it actually happened. This
49 tale has survived the Queen as one of the most
50 widely acknowledged “facts” of her life, and it
51 is likely to persist, marching down into history,
52 bearing with it the spirit of an age— and
53 followed always by a chorus of historical
54 pedants, chanting persistently, “But of course,
55 it isn’t true.”

19. According to the passage, the poor citizens of 18th century France faced which of the following problems involving bread?
- (A) Bakeries went out of business because the poor had no money to buy bread.
 - (B) People did not have enough bread to eat, even though they spent much of their money on it.
 - (C) People didn't like eating bread all the time, and craved something different.
 - (D) People weren't willing to pay outrageous bread prices and demanded cheaper alternatives.
20. The quotation "Let them eat cake" first appeared in
- (A) the popular culture of revolutionary France.
 - (B) the trial of Marie Antoinette.
 - (C) a book by Jean-Jacques Rousseau.
 - (D) a biography of Marie Antoinette.
21. The author's main purpose in this passage is to
- (A) dispute a popular historical myth.
 - (B) tell an exciting story about revolutionary France.
 - (C) persuade the reader that Marie Antoinette was actually a kind and generous person.
 - (D) describe how false stories begin and are spread.
22. According to the passage, why did people tend to believe the story about Marie Antoinette?
- (A) Historians did not discover until much later that the source was unreliable.
 - (B) It was the sort of thing Marie Antoinette was often known to say.
 - (C) The story confirmed what people already felt about the rich at that time.
 - (D) Only true stories last through history, so it was safe to assume it was reliable.
23. We can infer from the passage that Marie Antoinette was
- (A) not very well educated.
 - (B) only a small child at the time of her death.
 - (C) executed by French revolutionaries.
 - (D) never acquainted with Jean-Jacques Rousseau.
24. According to the passage, good stories
- (A) must be true, or they're merely myths.
 - (B) are usually fictional, but sometimes become facts.
 - (C) often persist whether or not they are true.
 - (D) must have a villain, even if one has to be made up.

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Questions 25–30

1 Since prehistoric times, people have
2 grown cotton to make clothing: archaeologists
3 have found pieces of cotton fabric in Mexico
4 and Pakistan dating from as far back as 5000
5 BC. Not only is cotton one of our most ancient
6 clothing materials, it is also the most
7 commonly used fiber in clothing today.
8 Although many people wear it daily, they may
9 not be aware of the role cotton has played in
10 history.

11 In the United States, most cotton was
12 produced in the fertile South. Until the end of
13 the 18th century, the US cotton industry was
14 small, yielding only about 900,000 kilograms
15 of cotton in 1791. The industry began to grow
16 tremendously in 1793, when the American Eli
17 Whitney invented the cotton gin. Before the
18 cotton gin, a bale of cotton required over 600
19 hours of labor to produce. With Whitney’s
20 invention, the process took only about 12
21 hours. With this increase in efficiency, cotton
22 soon became the dominant industry in the
23 South, and by 1801 the United States was
24 producing more than 22 million kilograms of
25 cotton every year.

26 By 1860, one year before the start of the
27 American Civil War, the Southern States
28 supplied the majority of the world’s cotton.
29 The cotton industry brought in huge profits for
30 the plantation owners. However, these profits
31 were accompanied by a substantial growth in
32 the slave industry, since slaves comprised the
33 majority of the workforce on cotton

34 plantations. By 1860, slaves constituted more
35 than 50% of the population of the cotton-
36 producing states of Alabama, Mississippi, and
37 Louisiana. The growth of the slave-based
38 cotton industry contributed in turn to the
39 American Civil War, since the North opposed
40 the use of slave labor, and the South was
41 emboldened by the power of the cotton
42 industry.

43 During the Civil War, the Southern States
44 attempted a policy called “cotton diplomacy.”
45 Most of the cotton produced in the American
46 South was exported to Europe, which was
47 dependent on American raw cotton for its
48 textile industry. The Southern States
49 attempted to use their economic influence to
50 persuade Great Britain to side with them in the
51 Civil War by drastically reducing the amount of
52 cotton they supplied. So strong was their belief
53 that Great Britain would accede to their
54 request that the plantation owners dubbed
55 their crop “King Cotton.” Unfortunately for
56 them, the warehouses of Great Britain had
57 already imported and stockpiled a huge
58 surplus of cotton. Cotton diplomacy failed, and
59 neither Great Britain nor any other European
60 power intervened during the Civil War.

61 The history of cotton is woven together
62 with agricultural slavery, industrial advances,
63 civil war, and foreign diplomacy. It has not
64 only been a fiber of choice in our clothing for
65 thousands of years, but also a significant
66 strand in the fabric of history.

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25. Which sentence best describes the main point of the second paragraph?
- (A) The South was the most fertile region of the United States.
 - (B) Eli Whitney was partially responsible for the Civil War.
 - (C) Cotton fields were mostly worked by slave labor.
 - (D) New technology transformed cotton production from a minor industry to a major one.
26. According to the passage, what was Eli Whitney's main contribution to the cotton industry?
- (A) Eli devised the policy of "cotton diplomacy" during the civil war.
 - (B) Eli increased the slave population in the south, allowing plantation owners to grow more cotton.
 - (C) Eli invented a machine that made it easier to process large quantities of cotton.
 - (D) Eli invented a device which allowed cotton to be processed for the first time.
27. Cotton diplomacy might have been a more successful policy if
- (A) all American farmers had produced cotton.
 - (B) plantation owners had produced less cotton.
 - (C) Northern mill towns had not exported any cotton to Great Britain.
 - (D) Great Britain's cotton warehouses had been empty.
28. When plantation owners called their crop "King Cotton," they were suggesting that
- (A) they grew a special variety of cotton that was larger than other types.
 - (B) their cotton was used mainly by royalty.
 - (C) the crop was technically owned by the Crown.
 - (D) the crop gave them a great deal of power.
29. Based on the context, "accede" (line 53) most nearly means
- (A) surpass.
 - (B) submit.
 - (C) answer.
 - (D) deny.
30. Which best describes the organization of the passage?
- (A) A subject is introduced, and events are described in chronological order.
 - (B) Each paragraph discusses a different aspect of the same problem.
 - (C) The passage describes a particular historical event and discusses its importance.
 - (D) Questions are posed and then answers are considered.

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Questions 31–35

1 Modern chemistry can seem like a
2 strange domain: mysterious chemicals are
3 manipulated and produced in massive,
4 expensive laboratories. Sometimes we even
5 use the word “chemical” as though it means
6 something artificial and dangerous— “Be sure
7 to wash your apples thoroughly, to get the
8 chemicals off!” It’s true that there might be
9 some dangerous chemical pesticides on apples,
10 but it turns out that apples themselves are also
11 made of chemicals! Everything around us is
12 made of chemicals, some natural and some
13 synthetic. The practice of chemistry has a long
14 history, beginning with the observations of
15 simple chemical interactions with the natural
16 world.

17 In the ancient world, as far back as the
18 historical record extends, people made use of
19 medicinal plants. This is not quite the practice
20 of chemistry as we know it today: ancient
21 peoples did not know why the plants they used
22 worked as they did to treat pain, fever, or
23 other maladies. But through a process of trial
24 and error, they discovered many medicinal
25 properties that would lay the groundwork for
26 pharmaceutical chemistry. We can examine the
27 case of willow bark, a raw plant substance that
28 has the useful property of relieving pain. At
29 first, people mostly chewed raw pieces of the

30 bark to relieve aches and pains, a practice
31 which continues today. Over time, simple
32 herbal remedies were processed in many ways
33 to create more potent medicines: extracts,
34 tinctures, distillates.

35 By the 17th century, people gained a
36 better understanding of chemical properties,
37 and began to isolate chemical compounds. In
38 the early 19th century, efforts to isolate the
39 active compounds in willow bark yielded
40 salicylic acid, the chemical that was
41 responsible for the bark’s pain-relieving
42 effects. Unfortunately, salicylic acid in its raw
43 form was hard on the stomach, and for that
44 reason wasn’t a practical medicine. But with
45 the active compound discovered, and with
46 advancing knowledge of chemistry, another
47 step could be taken: salicylic acid was
48 eventually combined with other chemicals to
49 create a new synthetic chemical, acetylsalicylic
50 acid, which retained its pain-relieving effects
51 while being easier on the stomach. This
52 became the drug which we now know as
53 aspirin. Aspirin, like many other modern
54 drugs, is produced in the laboratories of
55 modern chemists using modern techniques,
56 but its origins can be traced back to ancient
57 herbal remedies.

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31. The passage focuses primarily on
- (A) the evolving field of chemistry.
 - (B) laboratory practices today.
 - (C) the best herbal remedies for aches and pains.
 - (D) the invention of aspirin in the 19th century.
32. As used in line 26, the word “pharmaceutical” most likely means
- (A) menacing
 - (B) ingenious
 - (C) medicinal
 - (D) ancient
33. According to the passage, willow bark was used
- (A) to treat pain.
 - (B) to upset the stomach.
 - (C) as a food.
 - (D) only in the ancient world.
34. The author most likely uses the example of willow bark in order to
- (A) demonstrate that modern chemistry is not always better than ancient medicine.
 - (B) show how a natural substance could be refined into new forms as scientists’ knowledge of chemistry improved.
 - (C) show how ancient people often failed to use resources in the best way because they did not understand chemistry.
 - (D) provide an example of something in our everyday lives that is made of chemicals.
35. Based on the passage, we can infer that extracts of medicinal plants generally
- (A) have stronger effects than the raw plants.
 - (B) require knowledge of modern chemistry to produce.
 - (C) take a very long time to produce.
 - (D) have to be taken in larger doses than raw plants.
36. The author states that apples are made of chemicals in order to make the point that
- (A) apples are a much more dangerous food than people generally understand.
 - (B) it’s not actually important to wash apples before eating them, because apple chemicals are safe.
 - (C) synthetic apples can easily be produced using modern chemistry.
 - (D) the way that we use the word “chemicals” suggests that we don’t always recognize chemicals in nature.

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Section 4

Mathematics Achievement

47 Questions

Time: 40 minutes

Each question is followed by four suggested answers. Read each question and then decide which one of the four suggested answers is best.

Find the row of spaces on your answer document that has the same number as the question. In this row, mark the space having the same letter as the answer you have chosen. You may write in your test booklet.

SAMPLE QUESTION:

Sample Answer

If $a = 3$, what is the value $a^2 + (3 \times 4) \div 6$?

(A) (B) (C) (D)

(A) 3.5

(B) 11

(C) 14.5

(D) 20

The correct answer is 11, so circle B is darkened.

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- Which of the following numbers is divisible by 6?
 - 356
 - 358
 - 360
 - 362
- If 40 percent of a number is 200, then 10 percent of the same number is
 - 10
 - 20
 - 50
 - 190
- If $\blacksquare x = x^3 + 2$, then $\blacksquare 2 =$
 - 5
 - 6
 - 8
 - 10
- The sum of three consecutive odd numbers is 171. What is the largest number?
 - 57
 - 58
 - 59
 - 61
- The average test score of three students in a class is 81 percentage points. If one student's score goes up by 2 percentage points, one student's score goes up by 4 percentage points, and the other student's score remains the same, what will the new average test score be?
 - 81 percentage points
 - 83 percentage points
 - 84 percentage points
 - 87 percentage points

- A squirrel ate an average of x acorns per day for x days. After those x days, the squirrel ate an average of y acorns per day for y days. What was the average number of acorns eaten by the squirrel per day during that entire time period?

- $\frac{x^2+y^2}{x+y}$
- $\frac{x+y}{2}$
- $\frac{x^2+y^2}{2}$
- $\frac{x+y}{xy}$

- In Figure 1, $EFGH$ is a square. What is the area of the UNSHADED region?

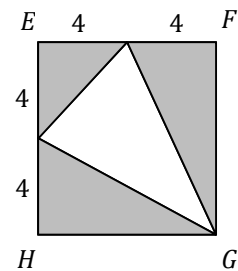


Figure 1

- 8
 - 16
 - 24
 - 28
- A safari company offers group tours that cost \$100 for two people and \$20 more for each additional person. If five people share the cost of the tour equally, how much does each person pay?
 - \$20.00
 - \$24.00
 - \$32.00
 - \$40.00

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9. If Figure 2 is a rectangle, then what is the value of x ?

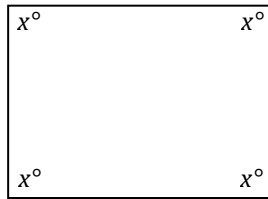


Figure 2

- (A) 45
- (B) 90
- (C) 180
- (D) 360

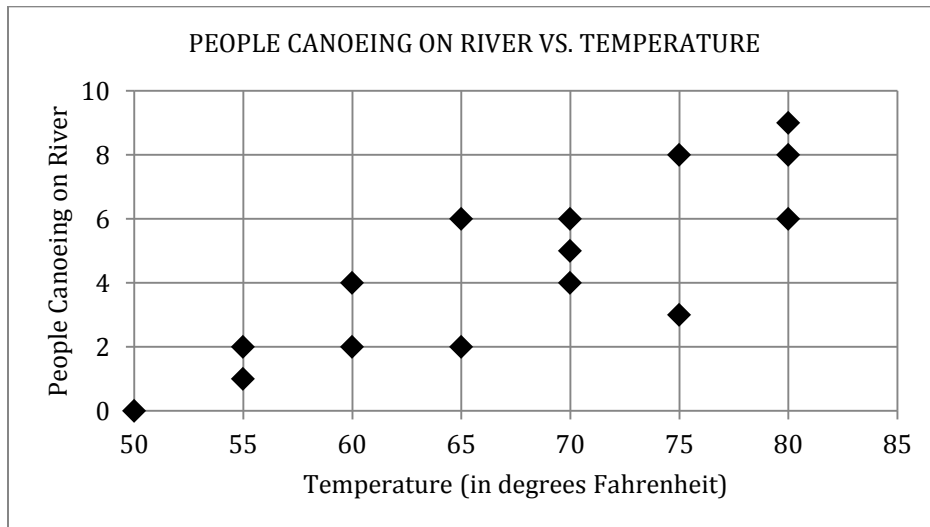
10. There were 17 sunny days this year, which was 18 fewer than last year. Two years ago, there were three times as many sunny days as there were this year. How many total sunny days were there in all three years?

- (A) 35
- (B) 51
- (C) 103
- (D) 104

11. What is the slope of the line $x = 4y - 24$?

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

12. Lisa counted the number of people canoeing on a river depending on the day's temperature on 15 separate occasions. The scatter plot below represents the data she collected. According to this information, approximately what temperature would you expect it to be if 4 people are canoeing on the river?



- (A) 50-60°
- (B) 60-70°
- (C) 70-80°
- (D) 75-87°

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13. $498.57 =$

- (A) $498 + \frac{5}{1} + \frac{7}{10}$
 (B) $498 + \frac{5}{10} + \frac{7}{10}$
 (C) $498 + \frac{5}{10} + \frac{7}{100}$
 (D) $498 + \frac{5}{100} + \frac{7}{1000}$

14. If two times x is greater than 7, then which of the following numbers could NOT be a value of x ?

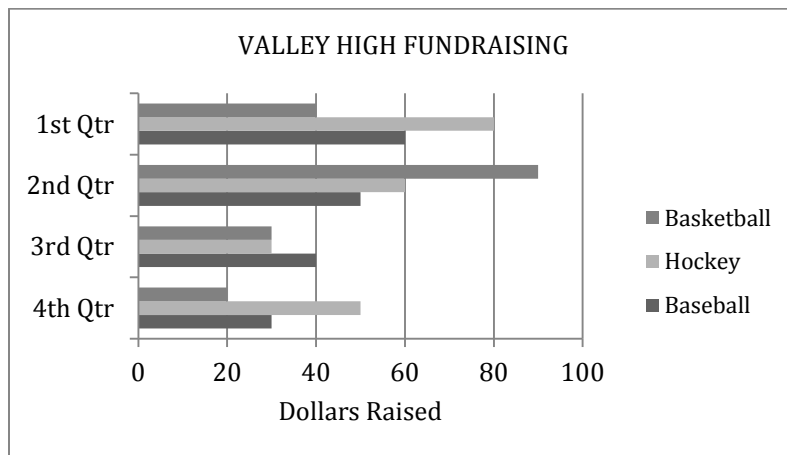
- (A) $3\frac{1}{2}$
 (B) $3\frac{3}{4}$
 (C) 4
 (D) $4\frac{1}{2}$

15. Lucy is ordering some books online.

There is a flat shipping fee for the first book she orders, and an additional charge for every extra book. This is represented by the formula $y = 0.75(x - 1) + 7$, where y is the total shipping cost and x is the total number of books ordered. What is the meaning of 0.75 in this formula?

- (A) For every dollar it costs to ship, there are 0.75 books being mailed.
 (B) For every book bought, the shipping cost is \$6.25.
 (C) For every extra book bought after the first, shipping costs an additional \$0.75 per book.
 (D) When 7 books are bought, the shipping cost is \$0.75.

16. The bar graph below shows the amount of money raised by three different sports teams during a fundraising event with four quarters.



Over all four quarters, the total funds raised by the basketball team were approximately what fraction of the total funds raised by the hockey team?

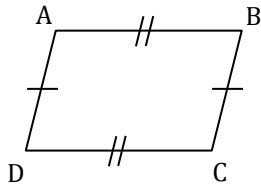
- (A) $\frac{3}{5}$
 (B) $\frac{4}{5}$
 (C) $\frac{9}{11}$
 (D) $\frac{10}{11}$

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17. Emily is eating her colored candies in the following pattern: one green, one blue, one red, one orange, one brown, one green, one blue, and so on. If this pattern continues, the 27th candy she eats will be what color?

(A) green
(B) red
(C) brown
(D) blue

18. What kind of quadrilateral is $ABCD$?



- (A) square
(B) rhombus
(C) parallelogram
(D) rectangle
19. What is the value of the expression $\frac{3}{4} + 0.21 + 1.17 + \frac{1}{10}$?

(A) 1.73
(B) 2.10
(C) 2.23
(D) $2\frac{1}{3}$

20. Keira has a set of paints with the following eight colors: red, orange, yellow, green, blue, purple, pink, and brown. If she randomly selects one color to paint the outline of a shape and then randomly selects one color to paint its interior, what is the probability that the shape has both an orange outline and an orange interior?

(A) $\frac{1}{64}$
(B) $\frac{1}{16}$
(C) $\frac{1}{8}$
(D) $\frac{3}{8}$

21. What is the slope of a line parallel to the line $\frac{1}{5}y - 3 = x$?

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

22. Pete can finish 20 math problems in 15 minutes. Julia can finish 45 math problems in 30 minutes. If they both have 60 minutes to work on the same math problems, how many more problems will Julia finish?

(A) 5
(B) 10
(C) 15
(D) 25

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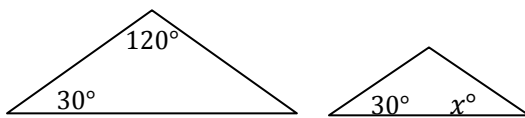
23. Kaitlin measured the weight of her pet hamsters on a weekly basis for four weeks. The table below shows the data she collected.

Hamster	Week 1 Weight (in ounces)	Week 2 Weight (in ounces)	Week 3 Weight (in ounces)	Week 4 Weight (in ounces)
Lulu	2	8	9	9
Buttercup	6	7	8	9
Cream Puff	10	12	15	21
Pepper	4	7	11	13

Which of Kaitlin's hamsters gained the most weight over the first two weeks?

- (A) Lulu
 (B) Buttercup
 (C) Cream Puff
 (D) Pepper

24. The figure below shows two similar triangles.



What is the value of x ?

- (A) 30°
 (B) 60°
 (C) 120°
 (D) 180°

25. The volume of a cube is 27 cm^3 . What is the surface area of the cube?

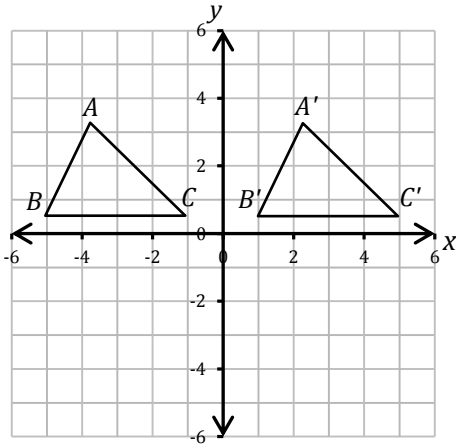
- (A) 9 cm^2
 (B) 27 cm^2
 (C) 36 cm^2
 (D) 54 cm^2

26. Which of the following expressions is NOT equal to 26?

- (A) $2 \times \frac{20}{2} + 6$
 (B) $\left(2 \times \frac{20}{2}\right) + 6$
 (C) $2 \times \left(\frac{20}{2} + 6\right)$
 (D) $2 \times \left(\frac{20+6}{2}\right)$

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27. How has triangle ABC been transformed to produce triangle $A'B'C'$?



- (A) Triangle ABC was reflected across the x-axis.
- (B) Triangle ABC was rotated 90°
- (C) Triangle ABC was translated horizontally 2 units to the right.
- (D) Triangle ABC was translated horizontally 6 units to the right.

28. Of the 25% of the customers at an ice cream shop who order soft-serve ice cream, $\frac{2}{3}$ order sprinkles as well. What fraction of the shop's customers order soft-serve ice cream with sprinkles?

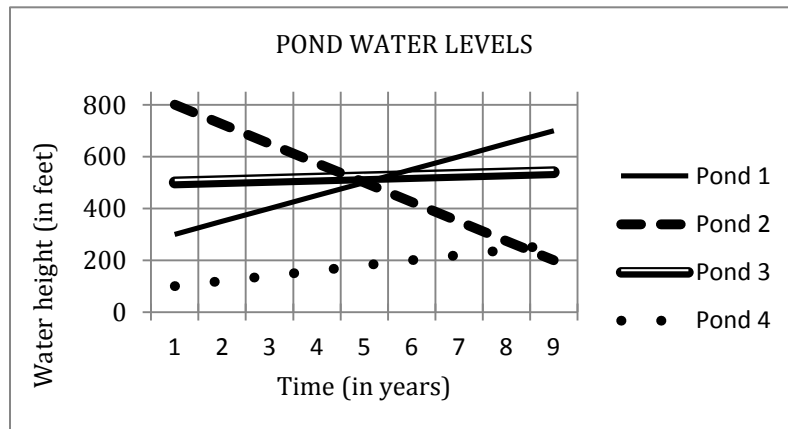
- (A) $\frac{4}{25}$
- (B) $\frac{1}{6}$
- (C) $\frac{1}{5}$
- (D) $\frac{1}{3}$

29. Which expression is equivalent to the expression shown?

$$\sqrt{9}(\sqrt{144} + 6x) \div 3$$

- (A) $\sqrt{16}(6x + 2)$
- (B) $\sqrt{153} + 6x$
- (C) $6(2 + x)$
- (D) $18(1 + 3x)$

30. The graph below shows the water level in four different ponds over a period of 9 years.



Which pond's water level changed the most during the 9-year period?

- (A) Pond 1
- (B) Pond 2
- (C) Pond 3
- (D) Pond 4

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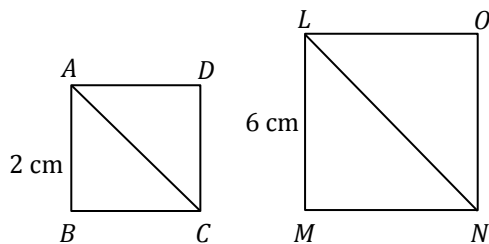
31. A school volleyball team is selling cupcakes to raise money. Their profits are their sale revenues minus their costs. Each box of cupcake mix can make 25 cupcakes and costs \$5.00 for the team to purchase. A tub of frosting can frost 50 cupcakes and costs \$2.00. If the team sells each cupcake for \$1.00, what is the fewest number of cupcakes they must sell to make \$20 in profits?

- (A) 20
- (B) 27
- (C) 32
- (D) 35

32. $12 \times \left(\frac{3}{12} - \frac{1}{4}\right) =$

- (A) 0
- (B) $\frac{1}{12}$
- (C) 6
- (D) 24

33. Triangles ABC and LMN are similar.



What is the ratio of the perimeter of square $ABCD$ to the perimeter of square $LMNO$?

- (A) 1 to 3
- (B) 1 to 4
- (C) 1 to 9
- (D) 1 to 18

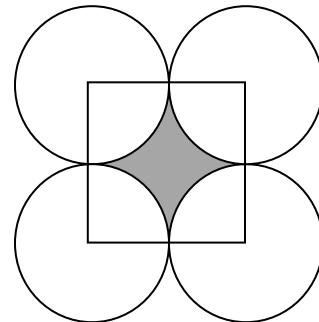
34. The figure below shows the first five elements of a dot pattern.



What is the sixth element of this pattern?

- (A)
- (B)
- (C)
- (D)

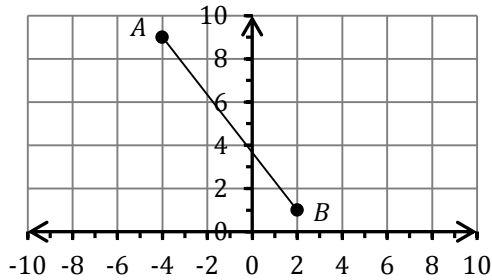
35. In the figure below, the centers of four identical circles form the corners of a square. The radius of each circle is 2 cm. What is the area of the shaded region?
(area of a circle = πr^2)



- (A) $4 - 4\pi \text{ cm}^2$
- (B) 4 cm^2
- (C) $16 - 4\pi \text{ cm}^2$
- (D) $16\pi - 4 \text{ cm}^2$

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36. Corwin is plotting a right triangle on the coordinate system shown below.



Two of the triangle's vertices are designated as points *A* and *B*. Which of the following coordinates could be the third vertex of the triangle?

- (A) $(-6, 1)$
 - (B) $(-4, 1)$
 - (C) $(1, -4)$
 - (D) $(6, 4)$
37. Hayley estimated the answer to the expression $(\sqrt{28} \times 298) \div 2$. Which of the following values is the closest estimate?
- (A) 1500
 - (B) 900
 - (C) 750
 - (D) 650

38. The expression $\frac{x}{w} \left(\frac{wx}{y} - \frac{w}{x} \right)$ is equivalent to which expression?

- (A) $\frac{x^2w}{y}$
- (B) $\frac{x^2-y}{y}$
- (C) $\frac{x+y^2}{wx}$
- (D) $\frac{x^2}{wy-wx}$

39. Three ☺ are equal to six ♣, and one ♣ is equal to four ☼. How many ☺ are equal to twelve ☼?

- (A) 1
- (B) 1.5
- (C) 3
- (D) 4.5

40. Rachel drew a map of her neighborhood, where 3 grid blocks represent 10 meters. If her house is 7.5 grid blocks away from her neighbor's house, how far apart are they in meters?

- (A) 7.5
- (B) 10
- (C) 25
- (D) 75

41. Which of the following is not a prime factor of 60?

- (A) 2
- (B) 3
- (C) 5
- (D) 6

42. If the area of a circle is πr^2 and the radius of a circle is half its diameter, what is the area of a circle with a diameter of 12?

- (A) 12π
- (B) 24π
- (C) 36π
- (D) 144π

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43. Victoria walks her dog at an average rate of 2 blocks per 5 minutes. If she walked her dog for a total of 5 hours over the course of the week, how many blocks did she walk?

- (A) 50
- (B) 60
- (C) 100
- (D) 120

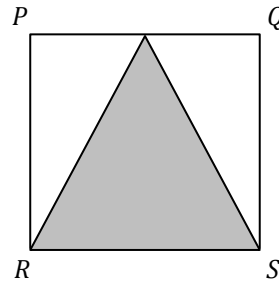
44. Rory has an average score of 89 on four math tests. Her highest test score was a 96, and the range of her scores was seventeen points. What was her lowest math score?

- (A) 70
- (B) 79
- (C) 89
- (D) 90

45. If M is an odd number, which of the following must also be odd?

- (A) $2M$
- (B) M^2
- (C) $M - 3$
- (D) $M - M$

46. Figure $PQRS$ is a square with side lengths of 6 cm. What is the area of the shaded region?



- (A) 6
- (B) 18
- (C) 36
- (D) 81

47. The local blackbird population increased by 25% over the last five years. If x represents the size of the population five years ago, which expression represents the size of the current population?

- (A) $0.125x$
- (B) $12.5x$
- (C) $125/x$
- (D) $1.25x$

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ANSWER KEY

ISEE MIDDLE LEVEL TEST 1

ISEE MIDDLE LEVEL

TEST 1

SECTION 1 – VERBAL REASONING

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

SECTION 2 – QUANTITATIVE REASONING

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

SECTION 3 – READING COMPREHENSION

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

SECTION 4 – MATHEMATICS ACHIEVEMENT

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

SCORING YOUR TEST

On the ISEE, you receive one point for every question you answered correctly, and you receive no points for questions you answered incorrectly or skipped. In each section, the ISEE also includes 5 or 6 experimental questions that do not count towards your score. You won't be told which questions are unscored, and for this reason, these practice tests do not have specific questions marked as experimental. This also means that it isn't possible to determine an exact score for each section of these practice tests, but you can estimate your score using the procedures below.

To estimate your **raw score** for your practice test, first count up the number of questions you answered correctly in each section. Then, follow the table below to subtract 5 or 6 points for each section, accounting for the experimental questions that would not be scored on your actual ISEE exam.

MY RAW SCORE			
Section	# of Questions Correct		Raw Score
Verbal Reasoning		- 5 =	
Quantitative Reasoning		- 5 =	
Reading Comprehension		- 6 =	
Mathematics Achievement		- 5 =	

SCALED SCORE

Once you have found your raw score, convert it into an approximate **scaled score** using the scoring charts that follow. These charts provide an estimated range for your ISEE scaled score based on your performance on this practice test. Keep in mind that this estimate may differ slightly from your scaled

score when you take your actual ISEE exam, depending on the ISEE’s specific scaling for that exam and any differences in your own test-taking process.

MIDDLE LEVEL SCALED SCORE RANGES				
Raw Score	Verbal Reasoning	Quantitative Reasoning	Reading Comprehension	Mathematics Achievement
42				875 – 905
41				875 – 905
40				870 – 900
39				870 – 900
38				865 – 895
37				865 – 895
36				860 – 890
35	895 – 925			860 – 890
34	890 – 920			855 – 885
33	890 – 920			855 – 885
32	885 – 915	895 – 925		850 – 880
31	885 – 915	895 – 925		850 – 880
30	880 – 910	890 – 920	915 – 940	845 – 875
29	875 – 905	885 – 915	910 – 940	845 – 875
28	875 – 905	885 – 915	905 – 935	845 – 875
27	870 – 900	880 – 910	905 – 935	840 – 870
26	865 – 895	875 – 905	900 – 930	840 – 870
25	865 – 895	875 – 905	895 – 925	835 – 865
24	860 – 890	870 – 900	890 – 920	835 – 865
23	855 – 885	865 – 895	885 – 915	830 – 860

22	855 – 885	865 – 895	885 – 915	830 – 860
21	850 – 880	860 – 890	880 – 910	825 – 855
20	845 – 875	855 – 885	875 – 905	825 – 855
19	845 – 875	855 – 885	870 – 900	820 – 850
18	840 – 870	850 – 880	870 – 900	820 – 850
17	835 – 865	845 – 875	865 – 895	815 – 845
16	835 – 865	845 – 875	860 – 890	815 – 845
15	830 – 860	840 – 870	855 – 885	810 – 840
14	825 – 855	835 – 865	855 – 885	810 – 840
13	825 – 855	835 – 865	850 – 880	805 – 835
12	820 – 850	830 – 860	845 – 875	805 – 835
11	815 – 845	830 – 860	840 – 870	800 – 830
10	815 – 845	825 – 855	835 – 865	800 – 830
9	810 – 840	820 – 850	835 – 865	795 – 825
8	810 – 840	820 – 850	830 – 860	795 – 825
7	805 – 835	815 – 845	825 – 855	790 – 820
6	800 – 830	810 – 840	820 – 850	790 – 820
5	800 – 830	810 – 840	820 – 850	785 – 815
4	795 – 825	805 – 835	815 – 845	785 – 815
3	790 – 820	800 – 830	810 – 840	780 – 810
2	790 – 820	800 – 830	805 – 835	780 – 810
1	785 – 815	795 – 825	805 – 835	775 – 805
0	780 – 810	790 – 820	800 – 830	775 – 805

PERCENTILE

When you take your actual ISEE exam, you will receive a **percentile** ranking comparing your performance against the performance of other students in the same grade who have taken the ISEE that year. For example, a percentile of 62 means that you scored higher than 62% of other ISEE test-takers applying to the same grade. Because your percentile ranking shows how well you performed according to your own grade level, these rankings are frequently given high consideration by admissions offices.

The following charts provide an estimate of your ISEE percentile rankings for this practice test, compared against other students applying to the same grade. For example, if you are scoring at or above the 75th percentile, you are scoring higher than 75% of other ISEE test-takers applying to the same grade. Keep in mind that these percentiles are estimates only, and your actual ISEE percentile will depend on the specific group of students taking the exam in your year.

MIDDLE LEVEL VERBAL REASONING PERCENTILES			
Grade Applying To	75 th percentile	50 th percentile	25 th percentile
Grade 7	880	868	853
Grade 8	890	878	867

MIDDLE LEVEL QUANTITATIVE REASONING PERCENTILES			
Grade Applying To	75 th percentile	50 th percentile	25 th percentile
Grade 7	877	865	853
Grade 8	884	873	864

MIDDLE LEVEL READING COMPREHENSION PERCENTILES			
Grade Applying To	75 th percentile	50 th percentile	25 th percentile
Grade 7	885	869	850
Grade 8	897	883	868

MIDDLE LEVEL MATHEMATICS ACHIEVEMENT PERCENTILES			
Grade Applying To	75 th percentile	50 th percentile	25 th percentile
Grade 7	882	871	861
Grade 8	886	876	867

STANINE

When you receive the score report for your actual ISEE exam, your percentile score will also be broken down into a **stanine**. A stanine is a number from 1-9 obtained by dividing the entire range of students' scores into 9 segments, as shown in the table below:

PERCENTILE RANK	STANINE
1 – 3	1
4 – 10	2
11 – 22	3
23 – 39	4
40 – 59	5
60 – 76	6
77 – 88	7
89 – 95	8
96 – 99	9

Although it isn't possible to calculate your exact stanine from this practice test, you can estimate a stanine score range by looking at your estimated percentile score on each section. For example, if you scored between the 50th and 75th percentile in one of your test sections, your stanine score would be between 5 and 6.