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.

<table>
<thead>
<tr>
<th>1 VERBAL REASONING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ⓐ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>2 Ⓐ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>3 Ⓒ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>4 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>5 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>6 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>7 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>8 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>9 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>10 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>11 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>12 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>13 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
<tr>
<td>14 Ⓑ Ⓑ Ⓒ Ⓓ</td>
</tr>
</tbody>
</table>
### 2 Quantitative Reasoning

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 3 Reading Comprehension

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4 Mathematics Achievement

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ivy Global
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.*
REMINDER: Please write this essay topic on the first few lines of page 6 of your answer sheet.

Essay Topic

If you could change one trend in popular culture, what would it be? Describe the trend, and explain why and how you would like to change it.

• Only write on this essay question
• Only pages 3 and 4 will be sent to the schools
• Only write in blue or black pen

NOTES

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
You must write your essay topic in this space.

Use specific details in your response
Section 1
Verbal Reasoning

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:

**CHARGE:**

(A) release  
(B) belittle  
(C) accuse  
(D) conspire

### Sample Answer

Ⓐ Ⓐ Ⓑ Ⓒ

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:

It rained so much that the streets were ________.

(A) flooded  
(B) arid  
(C) paved  
(D) crowded

### Sample Answer

십시오

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.

1. STREWN
   (A) lost
   (B) hidden
   (C) attached
   (D) scattered

2. DISCOURSE
   (A) deviation
   (B) loss
   (C) conversation
   (D) investigation

3. PERSPIRE
   (A) sweat
   (B) breathe
   (C) encourage
   (D) inhale

4. EXTERIOR
   (A) protected
   (B) outside
   (C) relevant
   (D) mysterious

5. GENERATE
   (A) power
   (B) produce
   (C) spin
   (D) burn

6. GLOSS
   (A) soap
   (B) illness
   (C) luster
   (D) shell

7. HARMONIOUSLY
   (A) aggressively
   (B) slowly
   (C) cooperatively
   (D) strikingly

8. PURSUE
   (A) browse
   (B) escape
   (C) chase
   (D) discover

9. CONFESS
   (A) admit
   (B) suppose
   (C) commit
   (D) fail

10. WORLDLINESS
    (A) orderliness
    (B) richness
    (C) miseducation
    (D) sophistication

Go on to the next page
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11. APEX</td>
<td>12. COSMIC</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) predator</td>
<td>(A) celestial</td>
</tr>
<tr>
<td>(B) valley</td>
<td>(B) unknown</td>
</tr>
<tr>
<td>(C) equator</td>
<td>(C) obscure</td>
</tr>
<tr>
<td>(D) peak</td>
<td>(D) bright</td>
</tr>
<tr>
<td>13. HOOKED</td>
<td>14. CALCULATE</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) complicated</td>
<td>(A) type</td>
</tr>
<tr>
<td>(B) captivated</td>
<td>(B) enter</td>
</tr>
<tr>
<td>(C) surrounded</td>
<td>(C) implicate</td>
</tr>
<tr>
<td>(D) abusive</td>
<td>(D) figure</td>
</tr>
<tr>
<td>15. SLOPPINESS</td>
<td>16. BUFFOON</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) carelessness</td>
<td>(A) fool</td>
</tr>
<tr>
<td>(B) cleverness</td>
<td>(B) pillow</td>
</tr>
<tr>
<td>(C) daring</td>
<td>(C) shrew</td>
</tr>
<tr>
<td>(D) haplessness</td>
<td>(D) vault</td>
</tr>
<tr>
<td>17. STOICALLY</td>
<td>18. PROGRESS</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) demonstrably</td>
<td>(A) advancement</td>
</tr>
<tr>
<td>(B) powerfully</td>
<td>(B) impediment</td>
</tr>
<tr>
<td>(C) indignantly</td>
<td>(C) conclusion</td>
</tr>
<tr>
<td>(D) unemotionally</td>
<td>(D) division</td>
</tr>
<tr>
<td>19. SCUTTLE</td>
<td>20. ATROCIOUS</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>(A) scurry</td>
<td>(A) perceptive</td>
</tr>
<tr>
<td>(B) prowl</td>
<td>(B) massive</td>
</tr>
<tr>
<td>(C) activate</td>
<td>(C) appalling</td>
</tr>
<tr>
<td>(D) hassle</td>
<td>(D) indignant</td>
</tr>
</tbody>
</table>
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
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
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
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

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

Sample Answer
Ⓐ Ⓑ Ⓒ Ⓓ
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:**

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>$\sqrt{25}$</td>
</tr>
</tbody>
</table>

Sample Answer: Ⓐ Ⓑ Ⓒ Ⓓ

The quantity in Column A (5) is the same as the quantity in Column B (5), so circle C is darkened.

**EXAMPLE 3:**

$x = 6^2 - 3 \times 4$

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x$</td>
<td>22</td>
</tr>
</tbody>
</table>

Sample Answer: Ⓑ Ⓒ Ⓓ Ⓓ

The quantity in Column A (24) is greater than the quantity in Column B (22), so circle A is darkened.
PART ONE – WORD PROBLEMS

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

1. \[
\frac{1}{4}, \frac{2}{8}, \frac{3}{12}, \frac{4}{■}
\]
   In the number pattern above, ■ =
   (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
Questions 7-8 are based on the graph in Figure 2.

**JACK’S ANNUAL TELEVISION SALES**

![Graph showing Jack's annual television sales from 2002 to 2007.]

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) 1/2

(B) 1/3

(C) 2/3

(D) 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 showing a square with labeled sides.]  

(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

---

Go on to the next page ➤
12. Which is a possible net for this cube?

(A)  

(B)  

(C)  

(D)  

Go on to the next page
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?

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

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

<table>
<thead>
<tr>
<th>Day (D)</th>
<th>Number of apples on the ground (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>19</td>
</tr>
<tr>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>31</td>
</tr>
</tbody>
</table>

(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

Go on to the next page
**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.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>22. (3 + 4 \times 5 + 6)</td>
<td>(4 + 3 \times 5 + 11)</td>
</tr>
<tr>
<td>23. (x \div y = \frac{x + y}{x})</td>
<td></td>
</tr>
<tr>
<td>24. (\sqrt{100 - 36})</td>
<td>(\sqrt{100 - \sqrt{36}})</td>
</tr>
<tr>
<td>25. The sum of 3 consecutive integers is 30.</td>
<td></td>
</tr>
<tr>
<td>26. Michael drives at 30 miles per hour for two hours. He then drives at 40 miles per hour for one hour.</td>
<td></td>
</tr>
<tr>
<td>27. Tina is stacking cubes to make a tower. Each cube has a side length of either 3 cm, 4 cm, or 5 cm.</td>
<td></td>
</tr>
<tr>
<td>28. The smallest number of cubes required for a tower that is 27 cm tall</td>
<td></td>
</tr>
<tr>
<td>29. A bag contains 3 yellow marbles, 5 blue marbles, and 7 red marbles.</td>
<td></td>
</tr>
<tr>
<td>30. (A, B, C, \text{ and } D ) lie on a line in that order. (AC = 10) and (BD = 8).</td>
<td></td>
</tr>
<tr>
<td>31. Ryan makes (\frac{4}{5}) of his basketball shots.</td>
<td></td>
</tr>
</tbody>
</table>

**Go on to the next page**
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.

32. The probability of flipping tails with a fair coin and then rolling a 3 with a fair die

33. The area of the shaded region

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

34. The price of a $50 sweater sold at x% off

The price of a $40 sweater sold at y% off

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.

36. The price of buying a bag to fill with 50 apples.

The price of buying 50 apples individually.

37. 2²

\(\sqrt{16}\)
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.
The Great Library of Alexandria was a marvel of ancient Egypt and of human achievement. Established during the Hellenistic period sometime between 324 and 246 BCE, under Ptolemy I or perhaps Ptolemy II, the Library was reputedly an architectural wonder. More importantly, the Library housed a vast collection of works from all across the ancient world and was a major center of scholarship. The Library was charged with the ambitious mission of collecting all of the world’s books, and it employed numerous methods to acquire new works. A well-funded acquisitions department scoured the book fairs of Rhodes and Athens, purchasing individual texts or even whole libraries. Ships that landed at the harbor of Alexandria were searched for books, and the books were confiscated and copied. The copies were returned to the owners of the originals, but the originals were kept in the library. The Library also employed a number of scholars who produced original works on Astronomy, Mathematics, Physics, and many other subjects. The scribes and scholars of the Great Library not only collected books and conducted research; they also assembled collections and translated texts from around the world into Greek. Many of the works translated or assembled at Alexandria survive to this day: some of the first translations of Biblical texts into Greek may have occurred in the time of Ptolemy I at the Library of Alexandria, although the canonical versions would not be created for some hundreds of years more. In addition, much work was done to compile and edit authoritative versions of the Homeric myths for which the Greeks are so well known today. These texts have played a fundamental role in shaping our culture for hundreds of years, and were only a few of the great works of translation and editing that took place in Alexandria in the Hellenistic period.

It is ironic that the fate of the Great Library—an institution dedicated to the collection and preservation of knowledge—is shrouded in myth and mystery. Many sources say it burned down, but they cannot agree upon a date. It may have been burned more than once, either by accident or intentionally. Smaller sister institutions may have survived the original library, only to be destroyed later. The Great Library, or some version of it, could have survived for anywhere from 300 to 1,000 years. Though the Library no longer stands, there is little doubt that the scholarship of the Great Library has had a great and lasting impact on history. The works that were kept, translated, or created there have had a profound influence on our culture even to the present day.
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 researchers 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.
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.
An early 19th century understanding of the laws of gravitation predicted certain orbits for each of the planets, and as a general rule the seven planets known at that time politely observed these orbits. Yet there was an exception: Uranus, at the far outer reaches of the solar system, refused to behave as predicted. The irregularity of Uranus’s orbit posed a problem for scientists: the data did not match their models for how the planets should behave.

Some believed the model must be modified, speculating that the effect of the sun’s gravity simply changed at such extreme distances. Others were convinced that the data was flawed; they believed it was more likely that astronomers had botched their observations than that current models of gravitation and planetary orbits— which so elegantly predicted the motions of other orbiting bodies— were wrong. Still, it was possible that the model was correct and the observations had been accurate, but that the data was incomplete. Those who believed this to be the case took the position that some as-yet-undiscovered object in the outer solar system was perturbing the orbit of Uranus, and that the discovery of that object would explain the eccentric orbit of Uranus.

If this theory was correct, it meant that there was a large orbiting body waiting to be discovered in the outer solar system, and at least two scientists— John Adams Couch and Urbain Jean-Jospeh Le Verrier— worked separately to calculate the position of such a body. By 1846, they had calculated the mass, orbit, and position of what would soon be recognized as the newest planet, using only theories of gravitation and observations of the orbit of Uranus. With the calculations done, astronomers pointed their telescopes to the location in the night sky where Couch and Le Verrier had predicted the planet could be found, and in a dramatic confirmation of their work, Neptune could be observed directly in its distant orbit at the outer edge of our solar system.
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, and in their depths dwells most of the planet’s life. We are drawn to certain aspects of the ocean, yet most of the marine world is alien to us. Just offshore, coral reefs dazzle us with rich colors and complex ecosystems. Reef fish are often quite beautiful, displaying a stunning variety of colors and patterns, and are a favorite choice for fish tanks. However, some parts of the ocean are less familiar to us. Kelp forests—thick, dizzying mazes of life—provide food for snails and urchins, which in turn are a source of food for otters, rockfish, and other predatory animals. Far out beyond the coast, where waves tower over ships, whales and massive fish graze on microscopic plankton, extracting their sustenance from what appears to the naked eye to be nothing but water. And deep down, beyond the continental shelf, beyond the warming rays of the sun, lie the abyssal plains.

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

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

4. We have explored less than 1% of the area covered by the abyssal plains, and most of that exploration has been conducted by remotely operated vehicles. Although we do have small submarines capable of carrying people to the depths of the ocean, fewer people have gone to the abyssal plains than have gone into space. This deep frontier, vast and mysterious, will surely yield many new discoveries in years to come if we only go and look for them.
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.
In 18th century France, the masses suffered greatly and ate poorly. The main staple of the common diet was bread, and half of the paltry income of the regular French citizen was dedicated to acquiring this simple commodity. As crops failed, shortages occurred, compounding the suffering of the poor. But while the common people suffered in the streets, the privileged classes, cloistered away in opulent mansions, ate and drank luxuriously in their private worlds of wealth and pleasure.

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

Upon hearing of the agonies of the people, that they had “no bread to eat,” Marie Antoinette, then Dauphine and later Queen of France, is reputed to have replied, “Let them eat cake!” The utterance acquired a great symbolic importance in the aftermath of the French Revolution, when historians used it to illustrate the ignorance and indifference of the upper classes to the suffering of the poor. The story expressed the feelings of the people, spoke clearly and powerfully to the sentiment of the time, and agreed with the judgment of the Revolutionary Tribunal that the Dauphine was a traitor to the people—a judgment which would lead her to the guillotine. It is an excellent tale, but it does have one minor flaw: it is almost certainly not true. It is, at the very least, a misattribution, but very likely a total fabrication. It appeared first in Confessions, the autobiography of Jean-Jacques Rousseau, attributed only to a “great princess.” Rousseau’s Confessions was not noted for its reliability, and even if we take the tale to be true, it would almost certainly have been written while Marie Antoinette was still only a small child.

Alas, a good story’s survival rarely rests on whether or not it actually happened. This tale has survived the Queen as one of the most widely acknowledged “facts” of her life, and it is likely to persist, marching down into history, bearing with it the spirit of an age—and followed always by a chorus of historical pedants, chanting persistently, “But of course, 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.
Since prehistoric times, people have grown cotton to make clothing: archaeologists have found pieces of cotton fabric in Mexico and Pakistan dating from as far back as 5000 BC. Not only is cotton one of our most ancient clothing materials, it is also the most commonly used fiber in clothing today.

Although many people wear it daily, they may not be aware of the role cotton has played in history.

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

By 1860, one year before the start of the American Civil War, the Southern States supplied the majority of the world’s cotton. The cotton industry brought in huge profits for the plantation owners. However, these profits were accompanied by a substantial growth in the slave industry, since slaves comprised the majority of the workforce on cotton plantations. By 1860, slaves constituted more than 50% of the population of the cotton-producing states of Alabama, Mississippi, and Louisiana. The growth of the slave-based cotton industry contributed in turn to the American Civil War, since the North opposed the use of slave labor, and the South was emboldened by the power of the cotton industry.

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

The history of cotton is woven together with agricultural slavery, industrial advances, civil war, and foreign diplomacy. It has not only been a fiber of choice in our clothing for thousands of years, but also a significant strand in the fabric of history.
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.
Modern chemistry can seem like a strange domain: mysterious chemicals are manipulated and produced in massive, expensive laboratories. Sometimes we even use the word “chemical” as though it means something artificial and dangerous—“Be sure to wash your apples thoroughly, to get the chemicals off!” It’s true that there might be some dangerous chemical pesticides on apples, but it turns out that apples themselves are also made of chemicals! Everything around us is made of chemicals, some natural and some synthetic. The practice of chemistry has a long history, beginning with the observations of simple chemical interactions with the natural world.

In the ancient world, as far back as the historical record extends, people made use of medicinal plants. This is not quite the practice of chemistry as we know it today: ancient peoples did not know why the plants they used worked as they did to treat pain, fever, or other maladies. But through a process of trial and error, they discovered many medicinal properties that would lay the groundwork for pharmaceutical chemistry. We can examine the case of willow bark, a raw plant substance that has the useful property of relieving pain. At first, people mostly chewed raw pieces of the bark to relieve aches and pains, a practice which continues today. Over time, simple herbal remedies were processed in many ways to create more potent medicines: extracts, tinctures, distillates.

By the 17th century, people gained a better understanding of chemical properties, and began to isolate chemical compounds. In the early 19th century, efforts to isolate the active compounds in willow bark yielded salicylic acid, the chemical that was responsible for the bark’s pain-relieving effects. Unfortunately, salicylic acid in its raw form was hard on the stomach, and for that reason wasn’t a practical medicine. But with the active compound discovered, and with advancing knowledge of chemistry, another step could be taken: salicylic acid was eventually combined with other chemicals to create a new synthetic chemical, acetylsalicylic acid, which retained its pain-relieving effects while being easier on the stomach. This became the drug which we now know as aspirin. Aspirin, like many other modern drugs, is produced in the laboratories of modern chemists using modern techniques, but its origins can be traced back to ancient herbal remedies.
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.
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:
If $a = 3$, what is the value $a^2 + (3\times4) \div 6$?

(A) 3.5
(B) 11
(C) 14.5
(D) 20

The correct answer is 11, so circle B is darkened.
1. Which of the following numbers is divisible by 6?
   (A) 356
   (B) 358
   (C) 360
   (D) 362

2. If 40 percent of a number is 200, then 10 percent of the same number is
   (A) 10
   (B) 20
   (C) 50
   (D) 190

3. If \( x = x^3 + 2 \), then \( 2 = \)
   (A) 5
   (B) 6
   (C) 8
   (D) 10

4. The sum of three consecutive odd numbers is 171. What is the largest number?
   (A) 57
   (B) 58
   (C) 59
   (D) 61

5. 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?
   (A) 81 percentage points
   (B) 83 percentage points
   (C) 84 percentage points
   (D) 87 percentage points

6. 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?
   (A) \( \frac{x^2+y^2}{x+y} \)
   (B) \( \frac{x+y}{2} \)
   (C) \( \frac{x^2+y^2}{2} \)
   (D) \( \frac{x+y}{xy} \)

7. In Figure 1, \( EFGH \) is a square. What is the area of the UNSHADED region?

8. 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?
   (A) $20.00
   (B) $24.00
   (C) $32.00
   (D) $40.00
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?

![Scatter plot]

(A) 50-60°
(B) 60-70°
(C) 70-80°
(D) 75-87°
13. \(498.57 = \)
   \(\text{(A) } 498 + \frac{5}{1} + \frac{7}{10}\)
   \(\text{(B) } 498 + \frac{5}{10} + \frac{7}{10}\)
   \(\text{(C) } 498 + \frac{5}{10} + \frac{7}{100}\)
   \(\text{(D) } 498 + \frac{5}{100} + \frac{7}{1000}\)

14. If two times \(x\) is greater than 7, then which of the following numbers could NOT be a value of \(x\)?
   \(\text{(A) } 3 \frac{1}{2}\)
   \(\text{(B) } 3 \frac{3}{4}\)
   \(\text{(C) } 4\)
   \(\text{(D) } 4 \frac{1}{2}\)

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

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

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

<table>
<thead>
<tr>
<th>Hamster</th>
<th>Week 1 Weight (in ounces)</th>
<th>Week 2 Weight (in ounces)</th>
<th>Week 3 Weight (in ounces)</th>
<th>Week 4 Weight (in ounces)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lulu</td>
<td>2</td>
<td>8</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Buttercup</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Cream Puff</td>
<td>10</td>
<td>12</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Pepper</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>13</td>
</tr>
</tbody>
</table>

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) $2 \times \left(\frac{20+6}{2}\right)$

Go on to the next page
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 $90^\circ$.
(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?

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

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

(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 = $\pi r^2$)

(A) $4 - 4\pi$ cm$^2$ 
(B) $4$ cm$^2$ 
(C) $16 - 4\pi$ cm$^2$ 
(D) $16\pi - 4$ cm$^2$
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 \(\frac{x^2w}{w} \cdot \frac{w}{x}\) is equivalent to which expression?

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

39. Three \(\odot\) are equal to six \(\bullet\), and one \(\bullet\) is equal to four \(\odot\). How many \(\odot\) are equal to twelve \(\odot\)?

(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 \(\pi r^2\) and the radius of a circle is half its diameter, what is the area of a circle with a diameter of 12?

(A) 12\(\pi\)
(B) 24\(\pi\)
(C) 36\(\pi\)
(D) 144\(\pi\)
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) \( 1.25x \)
ANSWER KEY

ISEE MIDDLE LEVEL TEST 1
ISEE MIDDLE LEVEL
TEST 1

SECTION 1 – VERBAL REASONING

SECTION 2 – QUANTITATIVE REASONING

SECTION 3 – READING COMPREHENSION

SECTION 4 – MATHEMATICS ACHIEVEMENT
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.

<table>
<thead>
<tr>
<th>MY RAW SCORE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section</strong></td>
</tr>
<tr>
<td>Verbal Reasoning</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
</tr>
<tr>
<td>Reading Comprehension</td>
</tr>
<tr>
<td>Mathematics Achievement</td>
</tr>
</tbody>
</table>

**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.

<table>
<thead>
<tr>
<th>Raw Score</th>
<th>Verbal Reasoning</th>
<th>Quantitative Reasoning</th>
<th>Reading Comprehension</th>
<th>Mathematics Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td></td>
<td></td>
<td></td>
<td>875 – 905</td>
</tr>
<tr>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td>875 – 905</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td>870 – 900</td>
</tr>
<tr>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td>870 – 900</td>
</tr>
<tr>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td>865 – 895</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td></td>
<td></td>
<td>865 – 895</td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
<td></td>
<td>860 – 890</td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td>860 – 890</td>
</tr>
<tr>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td>855 – 885</td>
</tr>
<tr>
<td>33</td>
<td></td>
<td></td>
<td></td>
<td>855 – 885</td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td>850 – 880</td>
</tr>
<tr>
<td>31</td>
<td></td>
<td></td>
<td></td>
<td>850 – 880</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td>845 – 875</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td>845 – 875</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td></td>
<td></td>
<td>845 – 875</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td></td>
<td></td>
<td>840 – 870</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td></td>
<td></td>
<td>840 – 870</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td>835 – 865</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>835 – 865</td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td>830 – 860</td>
</tr>
<tr>
<td></td>
<td>785 – 815</td>
<td>795 – 825</td>
<td>805 – 835</td>
<td>775 – 805</td>
</tr>
<tr>
<td>---</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>0</td>
<td>780 – 810</td>
<td>790 – 820</td>
<td>800 – 830</td>
<td>775 – 805</td>
</tr>
<tr>
<td>1</td>
<td>785 – 815</td>
<td>795 – 825</td>
<td>805 – 835</td>
<td>775 – 805</td>
</tr>
<tr>
<td>2</td>
<td>790 – 820</td>
<td>800 – 830</td>
<td>805 – 835</td>
<td>780 – 810</td>
</tr>
<tr>
<td>3</td>
<td>790 – 820</td>
<td>800 – 830</td>
<td>810 – 840</td>
<td>780 – 810</td>
</tr>
<tr>
<td>5</td>
<td>800 – 830</td>
<td>810 – 840</td>
<td>820 – 850</td>
<td>785 – 815</td>
</tr>
<tr>
<td>6</td>
<td>800 – 830</td>
<td>810 – 840</td>
<td>820 – 850</td>
<td>790 – 820</td>
</tr>
<tr>
<td>7</td>
<td>805 – 835</td>
<td>815 – 845</td>
<td>825 – 855</td>
<td>790 – 820</td>
</tr>
<tr>
<td>8</td>
<td>810 – 840</td>
<td>820 – 850</td>
<td>830 – 860</td>
<td>795 – 825</td>
</tr>
<tr>
<td>10</td>
<td>815 – 845</td>
<td>825 – 855</td>
<td>835 – 865</td>
<td>800 – 830</td>
</tr>
<tr>
<td>11</td>
<td>815 – 845</td>
<td>825 – 855</td>
<td>835 – 865</td>
<td>800 – 830</td>
</tr>
<tr>
<td>12</td>
<td>820 – 850</td>
<td>830 – 860</td>
<td>845 – 875</td>
<td>805 – 835</td>
</tr>
<tr>
<td>13</td>
<td>825 – 855</td>
<td>835 – 865</td>
<td>850 – 880</td>
<td>805 – 835</td>
</tr>
<tr>
<td>14</td>
<td>825 – 855</td>
<td>835 – 865</td>
<td>850 – 880</td>
<td>810 – 840</td>
</tr>
<tr>
<td>15</td>
<td>830 – 860</td>
<td>840 – 870</td>
<td>855 – 885</td>
<td>810 – 840</td>
</tr>
<tr>
<td>17</td>
<td>835 – 865</td>
<td>845 – 875</td>
<td>865 – 895</td>
<td>815 – 845</td>
</tr>
<tr>
<td>18</td>
<td>840 – 870</td>
<td>850 – 880</td>
<td>870 – 900</td>
<td>820 – 850</td>
</tr>
<tr>
<td>20</td>
<td>845 – 875</td>
<td>855 – 885</td>
<td>875 – 905</td>
<td>825 – 855</td>
</tr>
<tr>
<td>22</td>
<td>855 – 885</td>
<td>865 – 895</td>
<td>885 – 915</td>
<td>830 – 860</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>MIDDLE LEVEL VERBAL REASONING PERCENTILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Applying To</td>
</tr>
<tr>
<td>Grade 7</td>
</tr>
<tr>
<td>Grade 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MIDDLE LEVEL QUANTITATIVE REASONING PERCENTILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Applying To</td>
</tr>
<tr>
<td>Grade 7</td>
</tr>
<tr>
<td>Grade 8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MIDDLE LEVEL READING COMPREHENSION PERCENTILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Applying To</td>
</tr>
<tr>
<td>Grade 7</td>
</tr>
<tr>
<td>Grade 8</td>
</tr>
</tbody>
</table>
### MIDDLE LEVEL MATHEMATICS ACHIEVEMENT PERCENTILES

<table>
<thead>
<tr>
<th>Grade Applying To</th>
<th>75th percentile</th>
<th>50th percentile</th>
<th>25th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 7</td>
<td>882</td>
<td>871</td>
<td>861</td>
</tr>
<tr>
<td>Grade 8</td>
<td>886</td>
<td>876</td>
<td>867</td>
</tr>
</tbody>
</table>

### 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:

<table>
<thead>
<tr>
<th>PERCENTILE RANK</th>
<th>STANINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>1</td>
</tr>
<tr>
<td>4 – 10</td>
<td>2</td>
</tr>
<tr>
<td>11 – 22</td>
<td>3</td>
</tr>
<tr>
<td>23 – 39</td>
<td>4</td>
</tr>
<tr>
<td>40 – 59</td>
<td>5</td>
</tr>
<tr>
<td>60 – 76</td>
<td>6</td>
</tr>
<tr>
<td>77 – 88</td>
<td>7</td>
</tr>
<tr>
<td>89 – 95</td>
<td>8</td>
</tr>
<tr>
<td>96 – 99</td>
<td>9</td>
</tr>
</tbody>
</table>

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.