SECTION 2
QUANTITATIVE REASONING

Time: 35 minutes
35 Questions

Directions

Any figures that accompany 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. There are two types of questions:

(1) For Questions 1-20, work each in your head or on the space available on the test pages. Then look at the four choices and fill in the corresponding oval on the answer sheet.

<table>
<thead>
<tr>
<th>Example 1</th>
<th>If $3 + x = 5$, what is the value of $x$?</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A) 0 (B) 1 (C) 2 (D) 3</td>
<td></td>
</tr>
<tr>
<td>Example 2</td>
<td>$1 + \frac{1}{3} =$</td>
<td>Answer</td>
</tr>
<tr>
<td></td>
<td>(A) $\frac{2}{3}$ (B) $\frac{4}{3}$ (C) $\frac{5}{3}$ (D) $\frac{7}{3}$</td>
<td></td>
</tr>
</tbody>
</table>

(2) For Questions 21-35, note the given information, if any, and then compare the quantity in Column A to the quantity in Column B. On the answer sheet, fill in

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

<table>
<thead>
<tr>
<th>Example 3</th>
<th>Column A $2^2$</th>
<th>Column B $2^1$</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(E) (D)</td>
</tr>
</tbody>
</table>

The quantity in Column A (9) is greater than the quantity in Column B (8), so space A is marked.

<table>
<thead>
<tr>
<th>Example 4</th>
<th>The cost of 8 apples at 7 cents apiece</th>
<th>The cost of 7 apples at 8 cents apiece</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(A) (D)</td>
</tr>
</tbody>
</table>

The quantity in Column A (56 cents) equals the quantity in Column B (56 cents), so space C is marked.

<table>
<thead>
<tr>
<th>Example 5</th>
<th>$1 + x$</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>(A) (B) (C) (D)</td>
</tr>
</tbody>
</table>

Since $x$ can be any real number (including 0 or negatives), there is not enough information given to determine the relative sizes of the quantities in Columns A and B. Therefore, space D is marked.

GO ON TO THE NEXT PAGE.
1. Which of the following is greatest?
   (A) 0.0100  
   (B) 0.0099  
   (C) 0.1900  
   (D) 0.0199

2. Which of the following is NOT the product of two prime numbers?
   (A) 33  
   (B) 35  
   (C) 45  
   (D) 91

3. If $x$, $y$, and $z$ are consecutive even integers, then what is the difference between $x$ and $z$?
   (A) 0  
   (B) 1  
   (C) 2  
   (D) 4

Questions 4-5 refer to the following chart.

**Clothing Close-out**

<table>
<thead>
<tr>
<th></th>
<th>Originally</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dresses</td>
<td>$120</td>
<td>$90</td>
</tr>
<tr>
<td>Coats</td>
<td>$250</td>
<td>$180</td>
</tr>
<tr>
<td>Shoes</td>
<td>$60</td>
<td>$40</td>
</tr>
<tr>
<td>Hats</td>
<td>$40</td>
<td>$20</td>
</tr>
</tbody>
</table>

4. Which of the items for sale has the greatest percent discount?
   (A) Dresses  
   (B) Coats  
   (C) Shoes  
   (D) Hats

5. Purchasing which item will save the buyer the most dollars?
   (A) Dresses  
   (B) Coats  
   (C) Shoes  
   (D) Hats

GO ON TO THE NEXT PAGE.
6. Amy is three years older than Beth and five years younger than Jo. If Beth is $b$ years old, how old is Jo, in terms of $b$?

- (A) $2b + 3$
- (B) $2b - 3$
- (C) $b + 4$
- (D) $b + 8$

7. If $x$ is divided by 5, the remainder is 4. If $y$ is divided by 5, the remainder is 1. What is the remainder when $(x + y)$ is divided by 5?

- (A) 0
- (B) 1
- (C) 2
- (D) 3

8. What is the perimeter of the square $ABCD$ shown above?

- (A) 5
- (B) 15
- (C) 20
- (D) 25

9. At a party, 4 pizzas with 8 slices each were served. If each of the 9 guests had 3 pieces of pizza each, how many slices remained?

- (A) 4
- (B) 5
- (C) 6
- (D) 7

10. Jamie had $x$ dollars in the bank. He withdrew $\frac{1}{2}$ to buy a car. He withdrew $\frac{1}{3}$ of what was left to buy a couch. What fraction of the original amount remained in his account?

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

11. $J$ is a whole number divisible by 4. $J$ is also divisible by 3. Which of the following is NOT a possible value for $J$?

- (A) 12
- (B) 24
- (C) 30
- (D) 36

12. The product of 0.48 and 100 is approximately

- (A) 0.5
- (B) 4.8
- (C) 5
- (D) 50

13. Which of the following is less than $\frac{6}{7}$?

- (A) $\frac{2}{3}$
- (B) $\frac{8}{9}$
- (C) $\frac{7}{6}$
- (D) $\frac{17}{19}$

GO ON TO THE NEXT PAGE.
14. Square $ACEG$ shown above is composed of 4 squares with sides of 1 meter each. Traveling only on the lines of the squares, how many different routes from $A$ to $D$ that are exactly 3 meters long are possible?

(A) 2  
(B) 3  
(C) 4  
(D) 5

15. If, in triangle $ABC$, the measure of angle $B$ is greater than $90^\circ$, and $AB = BC$, what is a possible measure for angle $C$ in degrees?

(A) 35  
(B) 45  
(C) 60  
(D) It cannot be determined from the information given.

16. Chumway Motors discounts the cost of a car by 10% and then runs another special one-day deal offering an additional 20% off the discounted price. What discount does this represent from the original price of the car?

(A) 28%  
(B) 30%  
(C) 40%  
(D) 72%

17. David scored 82, 84, and 95 on his first three math tests. What score does he need on his fourth test to bring his average up to a 90?

(A) 90  
(B) 92  
(C) 96  
(D) 99

18. $\frac{1}{3}$ is most nearly equivalent to 

(A) 0.13  
(B) 0.3  
(C) 0.4  
(D) 0.5

19. 25% of 10% of 200 is 

(A) 250  
(B) 100  
(C) 50  
(D) 5

20. The ratio of yellow paint to red paint to white paint needed to make a perfect mixture of orange paint is 3 to 2 to 1. If 36 gallons of orange paint are needed to paint a cottage, how many gallons of red paint will be needed?

(A) 2  
(B) 6  
(C) 12  
(D) 15
Directions: For Questions 21-35, note the given information, if any, and then compare the quantity in Column A to the quantity in Column B. On the answer sheet, fill in

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

<table>
<thead>
<tr>
<th></th>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>25% of 50</td>
<td>50% of 25</td>
</tr>
</tbody>
</table>

In a group of 150 books, 60 percent are fiction.

22. Half the number of fiction books
    The difference between the number of fiction books and the number of nonfiction books

Dawn has a drawer filled with socks. The ratio of brown socks to blue socks is 2:3.

23. \(\frac{2}{3}\)
    The fractional part of the socks in Dawn’s drawer that are brown

24. \(x^3\)
    \(x^3\)

25. The average of the three smallest positive even integers
    The average of the three smallest positive integers

<table>
<thead>
<tr>
<th></th>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.</td>
<td>((x + 2)(x - 2) = 0)</td>
<td>(x)</td>
</tr>
</tbody>
</table>
<pre><code>|                            | \(2\)                     |
</code></pre>
<p>| 27. | (\sqrt{36} + \sqrt{16}) | (\sqrt{52})             |
| 28. | (3^{12})                | (9^6)                   |
| 29. | The height of the cube    | (3)                     |
| 30. | (\frac{x + 2}{y + 2} = \frac{x}{y}) | (x) | (y + 2) |</p>
### Column A | Column B
---|---
31. The sum of the integers from 1 to 100, inclusive | The sum of the even integers from 1 to 200, inclusive

\[
x = \frac{1.5}{4}
\]

32. \( x \) | 5

33. \( x > 0 \) | \( x^3 \)

---

A hiker completed a hike, walking at an average rate of 4 miles per hour. Had she averaged 5 miles per hour, the trip would have been completed two hours earlier than it was.

34. The number of hours in which the hike was completed | 10

---

35. \( x \) is a positive integer. \( y \) is the result of 100\( x \).
   The sum of the digits in \( x \) | The sum of the digits in \( y \)

---

**STOP**

IF YOU FINISH BEFORE TIME IS CALLED, YOU MAY CHECK YOUR WORK ON THIS SECTION ONLY. DO NOT TURN TO ANY OTHER SECTION IN THE TEST.