第二章　综合能力测试五套题

第一套

section 1

1. n is a positive integer, $x=7n+2$, and $y=6n+3$

Quantity A: The ones digit of $x+y$

Quantity B: 5

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

2. $0<x<y<1$

Quantity A: $1-y$

Quantity B: $y-x$

A. Quantity A is greater.

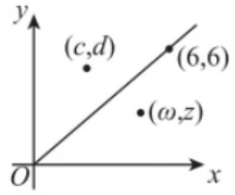
B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

3. Quantity A: $w+d$

Quantity B: $c+z$



A. Quantity A is greater.

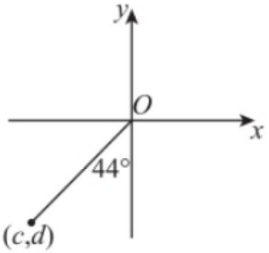
B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

4. Quantity A: c

Quantity B: d



A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

5. Set S consists of all positive integers less than 81 that are not equal to the square of an integer.

Quantity A: The number of integers in set S

Quantity B: 72

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

6. n is an integer, and k is not an integer.

$0<k<n<k+2$

Quantity A: n

Quantity B: $k+1$

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

7. Set T consists of the integers from 11 through 100, inclusive.

Quantity A: 4 times the number of integers in set T that are multiples of 4

Quantity B: 5 times the number of integers in set T that are multiples of 5

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

8. For 5 hours, a photocopier copied at a constant rate of 2 pages every 3 seconds.

Quantity A: The number of pages the photocopier copied in the 5 hours

Quantity B: 12,000

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

9. Marie earned \$0.75 for every mile she walked in a charity walkathon. If she earned a total of \$18.00 at that rate, how many miles did she walk?

A. 13.5 B. 17.8 C. 21 D. 22.5 E. 24

10. In the $xy-$plane, the point with coordinates $(-6, -7)$ is the center of circle C. The point with coordinates $(-6, 5)$ lies inside C, and the point with coordinates $(8, -7)$ lies outside C. If m is the radius of C and m is an integer, what is the value of m?

11. In the $xy-$plane, triangular region R is bounded by the lines $x = 0$, $y = 0$, and $4x+3y = 60$. Which of the following points lie inside region R? Indicate all such points

A. (2, 18) B. (5, 12) C. (10, 7) D. (12, 3) E. (15, 2)

12. In the triangle, if $y = 30$, then $x =$

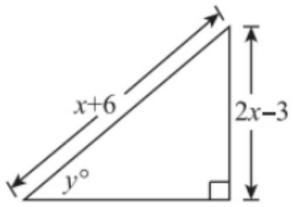
A. 3

B. 4

C. 5

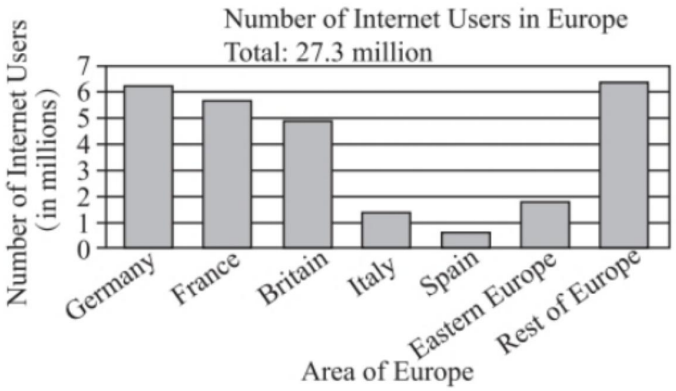
D. 8

E. 9



Questions 13−16 are based on the following data.

INTERNET USE IN YEAR *X*



13. Which of the following is closest to the percent of the Internet users in Europe who were in countries other than Germany, France, Britain, Italy, and Spain?

A. 30% B. 34% C. 38% D. 42% E. 46%

14. Approximately what was the range of the numbers of Internet users in the seven areas of Europe shown in the bar graph?

A. 6.5 million B. 5.5 million

C. 3.5 million D. 3.0 million

E. 2.5 million

15. The number of Internet users in the United States was approximately how many times the number of Internet users in Italy?

A. 5　　B. 15　　C. 20　　D. 25　　E. 35

16. Based on the information given, which of the following statements about Internet use in year X must be true?

Indicate all such statements

A. The United States had more Internet users than all other countries in the world combined

B. Spain had fewer Internet users than any country in Eastern Europe.

C. Germany and France combined had more than $\frac{1}{3}$ of the Internet users in Europe.

17. If $n=2\times3\times5\times7\times11\times13\times17$, then which of the following statements must be true?

I. n^2 is divisible by 600

II. $n+19$ is divisible by 19

III. $(n+4)/2$ is even

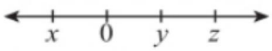
A. I only　　B. II only　　C. III only　　D. I and III

E. None of the above

18. For each integer $n>1$, let $A(n)$ denote the sum of the integers from 1 to n. For example, $A(100)=1+2+3+\cdots+100=5,050$. What is the value of $A(200)$?

A. 10, 100　　B. 15, 050　　C. 15, 150　　D. 20, 100　　E. 21, 500

19.



On the number line shown above, the tick marks are equally spaced. Which of the following statements about the numbers x, y, and z must be true?

Indicate all such statements.

A. $xyz<0$　　B. $x+z=y$　　C. $z(y-x)>0$

20. If n and m are positive integers and m is a factor of 2^6, what is the greatest possible number of integers that can be equal to both $3n$ and $\frac{2^6}{m}$?

A. Zero　　B. One　　C. Three　　D. Four　　E. Six