

1) In a certain region, the number of children who have been vaccinated against rubella is twice the number who have been vaccinated against mumps. The number who have been vaccinated against both is twice the number who have been vaccinated only against mumps. If 5,000 have been vaccinated against both, how many have been vaccinated only against rubella?

- ☐ 2,500
- ☐ 7,500
- ☐ 10,000
- ☐ 15,000
- ☐ 17,500

2) What is the greatest common factor of the positive integers j and k ?

(1) $k = j + 1$

(2) jk is divisible by 5.

- ☐ Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
- ☐ Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
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- ☐ EACH statement ALONE is sufficient.
- ☐ Statements (1) and (2) TOGETHER are NOT sufficient.

3) If n is a positive integer, what is the value of the hundreds digit of 30^n ?

(1) $30^n > 1,000$

(2) n is a multiple of 3.

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4) If $x < 0$ and $0 < y < 1$, which of the following has the greatest value?

- ☐ x^2
- ☐ $(xy)^2$
- ☐ $\left(\frac{x}{y}\right)^2$
- ☐ $\frac{x^2}{y}$
- ☐ x^2y

5) The sides of a square region, measured to the nearest centimeters, are 6 centimeters long. The least possible value of the actual area of the square region is

- ☐ 36.00 sq cm
- ☐ 35.00 sq cm
- ☐ 33.75 sq cm
- ☐ 30.25 sq cm
- ☐ 25.00 sq cm

6) When positive integer x is divided by 5, the remainder is 3; and when x is divided by 7, the remainder is 4. When positive integer y is divided by 5, the remainder is 3; and when y is divided by 7, the remainder is 4. If $x > y$, which of the following must be a factor of $x - y$?

- ☐ 12
- ☐ 15
- ☐ 20
- ☐ 28
- ☐ 35

7) If x and y are nonzero integers, is 18 a factor of xy^2 ?

(1) x is a multiple of 54.

(2) y is a multiple of 6.

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8) Is $(t/3) > (w/5)$?

(1) $w > t$

(2) $5t > 3w$

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9) Is $xy > x/y$?

(1) $xy > 0$

(2) $y < 0$

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10)

$$\begin{aligned} 2x + y &= 12 \\ |y| &\leq 12 \end{aligned}$$

For how many ordered pairs (x, y) that are solutions of the system above are x and y both integers?

- ☐ 7
- ☐ 10
- ☐ 12
- ☐ 13
- ☐ 14

11) In the xy -plane, the sides of a certain rectangle are parallel to the axes. If one of the vertices of the rectangle is $(-1, -2)$, what is the perimeter of the rectangle?

(1) One of the vertices of the rectangle is $(2, -2)$.

(2) One of the vertices of the rectangle is $(2, 3)$.

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12) Tom, Jane, and Sue each purchased a new house. The average (arithmetic mean) price of the three houses was \$120,000. What was the median price of the three houses?

(1) The price of Tom's house was \$110,000.

(2) The price of Jane's house was \$120,000.

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13) A certain circle in the xy -plane has its center at the origin. If P is a point on the circle, what is the sum of the squares of the coordinates of P ?

(1) The radius of the circle is 4.

(2) The sum of the coordinates of P is 0.

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14) One kilogram of a certain coffee blend consists of x kilogram of type I coffee and y kilogram of type II coffee. The cost of the blend is C dollars per kilogram, where $C = 6.5x + 8.5y$. Is $x < 0.8$?

(1) $y > 0.15$

(2) $C \geq 7.30$

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15)

If n is a positive integer, what is the remainder when $3^{8n+3} + 2$ is divided by 5?

- ☐ 0
- ☐ 1
- ☐ 2
- ☐ 3
- ☐ 4

16) In a stack of cards, 9 cards are blue and the rest are red. If 2 cards are to be chosen at random from the stack without replacement, the probability that the cards chosen will both be blue is $\frac{6}{11}$. What is the number of cards in the stack?

- ☐ 10
- ☐ 11
- ☐ 12
- ☐ 15
- ☐ 18

17) What is the remainder when the sum of the positive integers x and y is divided by 6?

(1) When x is divided by 6, the remainder is 3.

(2) When y is divided by 6, the remainder is 1.

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18) If k is an integer and $(0.0025)(0.025)(0.00025) \times 10^k$ is an integer, what is the least possible value of k ?

- ☐ -12
- ☐ -6
- ☐ 0
- ☐ 6
- ☐ 12

19) If k , m , and t are positive integers and $\frac{k}{6} + \frac{m}{4} = \frac{t}{12}$, do t and 12 have a common factor greater than 1 ?

(1) k is a multiple of 3.

(2) m is a multiple of 3.

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20) On an aerial photograph, the surface of a pond appears as circular

region of radius $\frac{7}{16}$ inch. If a distance of 1 inch on the photograph corresponds to an actual distance of 2 miles, which of the following is the closest estimate of the actual surface area of the pond, in square miles?

- ☐ 1.3
- ☐ 2.4
- ☐ 3.0
- ☐ 3.8
- ☐ 5.0

21) How many integers from 0 to 50, inclusive, have a remainder of 1 when divided by 3 ?

- ☐ 15
- ☐ 16
- ☐ 17
- ☐ 18
- ☐ 19

22) If $3^{6x} = 8,100$, what is the value of $(3^{x-1})^3$?

- ☐ 90
- ☐ 30
- ☐ 10
- ☐ $10/3$
- ☐ $10/9$

23) What is the cube root of w ?

(1) The 5th root of w is 64.

(2) The 15th root of w is 4.

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24) Is the number of seconds required to travel d_1 feet at r_1 feet per second greater than the number of seconds required to travel d_2 feet at r_2 feet per second?

(1) d_1 is 30 greater than d_2 .

(2) r_1 is 30 greater than r_2 .

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25) Six cards numbered from 1 to 6 are placed in an empty bowl. First one card is drawn and then put back into the bowl; then a second card is drawn. If the cards are drawn at random and if the sum of the numbers on the cards is 8, what is the probability that one of the two cards drawn is numbered 5 ?

- ☐ 1/6
- ☐ 1/5
- ☐ 1/3
- ☐ 2/5
- ☐ 2/3

26) If $n > 0$, which is greater, 20 percent of n or 10 percent of the sum of n and 0.5 ?

(1) $n < 0.1$

(2) $n > 0.01$

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27) How many prime numbers between 1 and 100 are factors of 7,150 ?

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four
- ☐ Five

28) If $x > 0$, is $x^2 < x$?

(1) $0.1 < x < 0.4$

(2) $x^3 < x^2$

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29) If a and b are positive integers such that $a-b$ and a/b are both even integers, which of the following must be an odd integer?

- A. $a/2$
- B. $b/2$
- C. $(a+b)/2$
- D. $(a+2)/2$
- E. $(b+2)/2$

30) The sum of the first k positive integers is equal to $k(k+1)/2$. What is the sum of the integers from n to m , inclusive, where $0 < n < m$?

- ☐ $\frac{m(m+1)}{2} - \frac{(n+1)(n+2)}{2}$
- ☐ $\frac{m(m+1)}{2} - \frac{n(n+1)}{2}$
- ☐ $\frac{m(m+1)}{2} - \frac{(n-1)n}{2}$
- ☐ $\frac{(m-1)m}{2} - \frac{(n+1)(n+2)}{2}$
- ☐ $\frac{(m-1)m}{2} - \frac{n(n+1)}{2}$

31) To be eligible for retirement benefits at the Omega Corporation, the sum of an employee's age, in years, and the number of years of employment must be at least 70. If x , where $x < 70$, is a certain employee's age when hired and y is the minimum number of years of employment required for the employee to be eligible for retirement benefits, which of the following equations represents the relationship between x and y ?

- ☐ $xy = 70$
- ☐ $x + y = 70$
- ☐ $2x + y = 70$
- ☐ $x + 2y = 70$
- ☐ $2x + 2y = 70$

答案:

1-5 CADCD 6-10 EDBED 11-15 BBABE 16-20 CCEAB

21-25 CDDED 26-31 ADDDCD