

SAT Maths Sample Paper 5

1. What number increased by 4 and then decreased by 7 equals to 12?

A. 10

B. 12

C. 15

D. 14

2. What number tripled and then increased by 8 equals to 48 decreased by 4?
- A. 24
B. 19
C. 20
D. 12
3. If the sum of two numbers that differ by 3 is s , then in term of s , what is the value of the smaller number?
- A. $\frac{s - 3}{2}$
B. $\frac{s + 2}{3}$
C. $\frac{s}{2}$
D. $\frac{3s}{2}$
4. If s is a positive integer and s is divisible by 3. If $s < 70$, then what is the sum of the smallest possible value of s and the greatest possible value of s ?
- A. 63
B. 72
C. 70
D. 69
5. If $a = 42$, then how many factors including 1 and itself does a have?
- A. 4
B. 10
C. 8
D. 2

6. Three numbers a^3 , a^2 and a follow this order on a number line. What is a possible value of a ?
- A. -1
- B. 2
- C. 0.5
- D. 4
7. If n is a negative integer, then which of the following must be positive?
- A. $n - 2$
- B. $\frac{n}{5}$
- C. $3 - n$
- D. n^3
8. If m is an odd number, then which of the following must be a positive even number?
- A. $2m + 1$
- B. $-2m + 4$
- C. $2m^2 + 1$
- D. $2m^2 + 4$
9. If the sum of seven consecutive integers is 301, then what is the least number of these seven numbers?
10. If a number m has 4 prime factors, then including 1 and m itself, how many factors does m have?

Answers

1. C To solve the question, we can increase 12 by 7, which equals to 19 and then decreased by 4, which leads to 15.
2. D 48 decreased by 4 is 44, then 44 decreased by 8 equals to 36. "triple" means a number times 3, therefore, the number is 12.
3. A The two numbers can be denoted as s and $x + 3$. Therefore, $x + (x + 3) = s$.
Solving for x leads to $x = \frac{s - 3}{2}$.
4. B s is a positive integer and can be divided by 3, meanwhile, $s < 70$, therefore, the smallest value of s is 3 and the greatest value of s is 69. Thus $3 + 69 = 72$.
5. C 42 has three prime factors, which are 2, 3, 7. Combining any two of these three prime factors leads to 6, 14, 21, which are also the factors of 42. Including 1 and 42 itself, there are totally 8 factors of 42.
6. C When $a = 0.5$, then $a^3 = 0.125$ and $a^2 = 0.25$.
7. C $3 - n = 3 + (-n)$, where $-n > 0$. Therefore, only $3 - n$ is positive.
8. D If m is an odd number, then m^2 must be a positive odd number, and $2m^2 + 4$ must be a positive even number.
9. 40. These 7 integers can be expressed as $x, x + 2, x + 3, x + 4, x + 5, x + 6$,
 $f(g(x)) = 3x + 8$. Therefore the sum is $7x + 21 = 301$. Solving this equation leads to $x = 40$.
10. 16. m has 4 prime factors. Any two of these prime factors lead to another 6 factors of m .
Moreover, any three of these prime factors lead to another 4 factors of m . Therefore, totally m has 16 factors if 1 and m itself included.