Algebra

The Language and Tools of Algebra

1.

Twice the product of m and n decreased by the square of the sum of m and n.

Which of the following is an expression for the statement?

A. $2mn - (m^2 + n^2)$

B. $2mn - (m + n)^2$

C. $(m + n)^2 - 2mn$

D. $(m^2 + n^2) - 2mn$

2.

The product of a number x and four decreased by twelve.

Which of the following is an expression for the statement?

A. $4x + 12$

B. $4(x + 12)$

C. $4(x - 12)$

D. $4x - 12$

3.

The quotient of 19 and a number d increased by seven.

Which of the following is an expression for the statement?

A. $\frac{19}{d} + 7$

B. $\frac{d}{19} + 7$

C. $\frac{19 + d}{7}$

D. $\frac{d + 7}{19}$

4.

Mario received y text messages each minute for 10 minutes yesterday and received t text messages each minute for 20 minutes today.

What is the total number of text messages he received for two days in terms of y and t ?

A. $30yt$

B. $200yt$

C. $20y + 10t$

D. $10y + 20t$

5.

Which of the following expressions represents the product of $3k$ and the sum of m and one third of n ?

A. $3km + \frac{1}{3}n$

B. $3k \cdot \frac{1}{3}(m + n)$

C. $3k\left(m + \frac{1}{3}n\right)$

D. $3k\left(m + n + \frac{1}{3}\right)$

6.

The difference between two numbers is eight. If the smaller number is n to the third power, what is the greater number?

A. $n^3 - 8$

B. $n^3 + 8$

C. $8 - n^3$

D. $8n^3$

7.

Calculate $\left[(7^2 - 9) \div 8\right] \cdot 2$

Answer:

8. Calculate $19 - 3\left(20 - \dfrac{2^4 - 7}{4} \times 8\right)$

Answer :

9. Calculate $\dfrac{72 \div 3^2 \cdot 2}{6}$

Answer :

10. Calculate $5^3 - \dfrac{1}{2}(12 + 12 \div 3)$

Answer :

11. What is the value of $\left(\dfrac{2c}{a}\right)^2 - 10 \times \dfrac{b+a}{c}$

if $a = -2$, $b = 3$, $c = 5$?

Answer :

12. What is the value of $9 - 2x \div (z - y)^3$

if $y = -1$, $z = -3$?

Answer :

13. What is the value of $\dfrac{7 \div q^2 \cdot 2}{2p} \cdot \dfrac{-p + 6q - r}{-q}$

if $p = 4$, $q = \dfrac{1}{2}$, and $r = 2$?

Answer :

14. What is the value of $\dfrac{c - 2(a+b)}{(c-a)^2}$

if $a = -\dfrac{1}{2}$, $b = \dfrac{3}{2}$, and $c = \dfrac{5}{2}$?

Answer :

15. Which of the following expressions is equivalent to

$$\frac{2}{3}(a^2 - a - 3) + \frac{1}{3}(a^2 + 2a + 6)$$

A. a^2

B. $a^2 + a$

C. $a^2 - a$

D. $a^2 - 1$