



1. Simplify: $20 + 4^3 \div (-8)$

a) 4

b) -4

c) 12

d) -10.5

$$20 + 64 \div (-8)$$

$$20 - 8 = 12$$

2. Simplify: $(2a - 4) + 2(a - 5) - 3(a+1)$

a) $7a - 11$

b) $a - 17$

c) $a - 11$

d) $7a - 17$

$$\begin{aligned} & 2a - 4 + 2a - 10 - 3a - 3 \\ & = a - 17 \end{aligned}$$

3. Evaluate the expression: $4a^2 - 4ab + b^2$, when $a = 2$ and $b = 5$

a) -14

b) 1

c) 66

d) 81

$$\begin{aligned} & 4(2)^2 - 4(2)(5) + (5)^2 \\ & = 16 - 40 + 25 = -24 + 25 \\ & = 1 \end{aligned}$$

4. Firefighters use the formula $S = 0.5P + 26$ to compute the horizontal range S in feet of water from a particular hose, where P is the nozzle pressure in pounds. Find the horizontal range if pressure is 90 lb.

a) 44 feet

b) 450 feet

c) 19 feet

d) 71 feet

$$\begin{aligned}S &= .5(90) + 26 \\&= 45 + 26 = 71\end{aligned}$$

5. Simplify: $2x^2(-3x^2)^3$

a) $54x^{12}$

b) $18x^8$

c) $-18x^{12}$

d) $-54x^8$

$$2x^2(-27x^6) = -54x^8$$

6. Simplify: $\left(\frac{2u^{-5}v^2}{8w}\right)^2$

a) $\frac{w^2v^4}{4u^7}$

b) $\frac{16v^4}{w^2u^{10}}$

c) $\frac{16w^2u^{10}}{v^4}$

d) $\frac{u^7v^4}{4w^2}$

$$\left(\frac{8w}{2u^{-5}v^2}\right)^2 = \left(\frac{4u^5w}{v^2}\right)^2 = \frac{16u^{10}w^2}{v^4}$$

Handwritten annotations: A red circle highlights the fraction $\frac{8w}{2u^{-5}v^2}$. A purple circle highlights the exponent 2. A red circle highlights the result $\frac{16u^{10}w^2}{v^4}$.

7. Express in scientific notation: 0.0000056

a) 5.6×10^{-6}

b) 5.6×10^6

c) 5.6×10^{-5}

d) 5.6×10^{-7}

$$a \times 10^b$$

$$1 \leq a < 10$$

8. Expand: 1.20×10^5

a) 12000000

b) 1200000

c) 120000

d) 12000

1.20 0 0 0,