

Model each statement with an algebraic expression: Exactly as written

1. The product of eight and the quantity four more than a number.

$$8 \cdot (n + 4)$$

2. The quotient of a number and eleven.

$$\frac{x}{11} \text{ or } x \div 11$$

3. Six less than three times a number.

$$3m - 6$$

It takes five lines to make a pentagon. Write an equation for the number of lines it takes to make an unknown number of pentagons. Define your variables.

$P = \# \text{ pentagons}$

$L = \# \text{ lines}$

L	P
5	1
10	2
15	3

$$L = 5 \cdot P$$

I planted an oak tree in my yard when it was 4 feet tall. Each year the tree grows 2 feet. Write an equation for the height of the tree after an unknown number of years. Define your variables.

$$\begin{aligned} h &= 4 + 2y \\ \text{or} \\ h &= 2y + 4 \end{aligned}$$

$y = \# \text{ yrs}$

$h = \text{ht of tree}$

When I went to bed the temperature outside was 50° . Each hour the temperature dropped 3° . Write an equation for the outside temperature after an unknown number of hours. Define your variables.

$$\begin{aligned} T &= 50 - 3h \\ \text{or} \\ T &= -3h + 50 \end{aligned}$$

$T = \text{Temp}$

$h = \# \text{ hrs}$

There are 100 centimeters in every meter. Write an equation for the number of meters in an unknown number of centimeters. Define your variables.

$$m = \frac{c}{100}$$

$$c = \# \text{ cm}$$

$$m = \# \text{ m}$$

Simplify:

$$\begin{aligned} & -4 + 2 - |-6| \\ & = -4 + 2 - 6 \\ & = -2 - 6 = -8 \end{aligned}$$

$$\begin{aligned} & 3 - 5|-8 + 4| \\ & \quad \quad \quad \downarrow \\ & \quad \quad \quad |-4| \\ & = 3 - 5 \cdot 4 \\ & = 3 - 20 = -17 \end{aligned}$$

Evaluate for $H = -6$ $K = -3$ $J = 5$

1. $-H - K^2$

$$\begin{aligned} & = 6 - (-3)^2 \\ & = 6 - 9 \\ & = -3 \end{aligned}$$

Evaluate for $H = -6$ $K = -3$ $J = 5$

2. $2J^2 - HK$

$$\begin{aligned} & = 2(5)^2 - (-6)(-3) \\ & \quad \downarrow \quad \quad \downarrow \\ & 2(25) \quad \quad \downarrow \\ & 50 - 18 = 32 \end{aligned}$$

Evaluate for $H = -6$ $K = -3$ $J = 5$

3. $HJK - K + H^2$

$$\underbrace{(-6)(5)(-3)} - (-3) + (-6)^2$$

$$90 + 3 + 36$$

$$93 + 36 = \boxed{129}$$