

Lesson 2-2

Example 1

Simplify each numerical expression.

a. $8.72 - 4.1$

b. $\frac{1}{3}(15) + 4$

c. $(40 \div 2) \cdot 3$

Solution

a. $8.72 - 4.1 = 4.62$

b. $\frac{1}{3}(15) + 4 = 5 + 4$
 $= 9$

c. $(40 \div 2) \cdot 3 = 20 \cdot 3$
 $= 60$

Example 2

Simplify each numerical expression.

a. $(2 + 3) \cdot 4^2$

b. $32 - 5 - 18 \div 9$

c. $1^3 \cdot (7 - 2)$

Solution

a. $(2 + 3) \cdot 4^2 = 5 \cdot 4^2$
 $= 5 \cdot 16$
 $= 80$

b. $32 - 5 - 18 \div 9 = 32 - 5 - 2$
 $= 27 - 2$
 $= 25$

c. $1^3 \cdot (7 - 2) = 1^3 \cdot 5$
 $= 1 \cdot 5$
 $= 5$

Example 3

Evaluate each variable expression when $d = 1.4$.

a. $5 + d^2$

b. $\frac{1}{7}d + 3.1$

c. $(7.1 - d) \div 3$

d. $d \cdot 2^2 + 32 \div 8$

Solution

In each expression, substitute 1.4 for d .

$$\begin{aligned} \text{a. } 5 + d^2 &= 5 + 1.4^2 \\ &= 5 + 1.96 \\ &= 6.96 \end{aligned}$$

$$\begin{aligned} \text{b. } \frac{1}{7}d + 3.1 &= \frac{1}{7}(1.4) + 3.1 \\ &= 0.2 + 3.1 \\ &= 3.3 \end{aligned}$$

$$\begin{aligned} \text{c. } (7.1 - d) \div 3 &= (7.1 - 1.4) \div 3 \\ &= 5.7 \div 3 \\ &= 1.9 \end{aligned}$$

$$\begin{aligned} \text{d. } d \cdot 2^2 + 32 \div 8 &= 1.4 \cdot 2^2 + 32 \div 8 \\ &= 1.4 \cdot 4 + 32 \div 8 \\ &= 5.6 + 4 \\ &= 9.6 \end{aligned}$$

Example 4

MODELING Use Algeblocks to represent each variable expression.

a. $x + 3$

b. $2y$

c. $x^2 - 2$

d. $-3x + 2y^2$

Solution