

Lesson 9-2

Example 1

Simplify.

a. $9n + (7n - 12)$

b. $(8b^2 + 19) + (3b^2 - 7)$

c. $(11z^2 - 5z + 13) + (z^2 - 17)$

Solution

$$\begin{aligned} \text{a. } 9n + (7n - 12) &= (9n + 7n) - 12 && \text{Use the Associative Property.} \\ &= (9 + 7)n - 12 && \text{Use the Distributive Property.} \\ &= 16n - 12 \end{aligned}$$

$$\begin{aligned} \text{b. } (8b^2 + 19) + (3b^2 - 7) &= (8b^2 + 3b^2) + (19 - 7) && 8b^2 \text{ and } 3b^2 \text{ are like terms.} \\ &= (8 + 3)b^2 + [19 + (-7)] && 19 \text{ and } -7 \text{ are like terms.} \\ &= 11b^2 + 12 \end{aligned}$$

$$\begin{aligned} \text{c. } (11z^2 - 5z + 13) + (z^2 - 17) &= (11z^2 + z^2) + (-5z) + (13 - 17) \\ &= (11 + 1)z^2 + (-5z) + (-4) \\ &= 12z^2 - 5z - 4 \end{aligned}$$

Example 2**Simplify.**

a. $16t - (13t - 8)$

b. $(-p + 8) - (-12p - 6)$

c. $(23x^2 - 16) - (18x^2 - 6x + 7)$

Solution

a. $16t - (13t - 8) = 16t + (-13t + 8)$ Add the opposite of $13t - 8$.
 $= [16t + (-13t)] + 8$ $16t$ and $-13t$ are like terms.
 $= (16t - 13t) + 8$
 $= (16 - 13)t + 8$ Use the Distributive Property.
 $= 3t + 8$

b. $(-p + 8) - (-12p - 6) = (-p + 8) + (12p + 6)$ Add the opposite of $-12p - 6$.
 $= (-p + 12p) + (8 + 6)$ Group like terms.
 $= (-1 + 12)p + 14$ Write the coefficient of $-p$ as -1 .
 $= 11p + 14$

c. $(23x^2 - 16) - (18x^2 - 6x + 7) = (23x^2 - 16) + (-18x^2 + 6x - 7)$
 $= [23x^2 + (-18x^2)] + 6x + (-16 - 7)$
 $= (23 + (-18))x^2 + 6x + (-16 - 7)$
 $= 5x^2 + 6x - 23$