

Skill: Solving Linear Equations (continued)

Investigation 3

Say It With Symbols

Solve each equation for the indicated variable.

$$\begin{array}{r}
 9. \quad 3k + 16 = 5k \\
 3k + 16 - 3k = 5k - 3k \\
 -2k + 16 = 0 \\
 -2k + 16 - 16 = 0 - 16 \\
 -2k = -16 \\
 \frac{-2k}{-2} = \frac{-16}{-2} \\
 \boxed{k = 8}
 \end{array}$$

$$\begin{array}{r}
 10. \quad 5e = 3e + 36 \\
 5e - 3e = 3e + 36 - 3e \\
 2e = 36 \\
 \frac{2e}{2} = \frac{36}{2} \\
 \boxed{e = 18}
 \end{array}$$

$$\begin{array}{r}
 11. \quad n + 4n - 22 = 7n \\
 5n - 22 = 7n \\
 5n - 22 - 7n = 7n - 7n \\
 -2n - 22 = 0 \\
 -2n - 22 + 22 = 0 + 22 \\
 -2n = 22 \\
 \frac{-2n}{-2} = \frac{22}{-2} \\
 \boxed{n = -11}
 \end{array}$$

$$\begin{array}{r}
 12. \quad 2(x - 7) = 3x \\
 2(x) + 2(-7) = 3x \\
 2x - 14 = 3x \\
 2x - 14 - 3x = 3x - 3x \\
 -x - 14 = 0 \\
 -x - 14 + 14 = 0 + 14 \\
 -x = 14 \\
 \frac{-x}{-1} = \frac{14}{-1} \\
 \boxed{x = -14}
 \end{array}$$

$$\begin{array}{r}
 13. \quad 8h - 10h = 3h + 25 \\
 -2h = 3h + 25 \\
 -2h - 3h = 3h + 25 - 3h \\
 -5h = 25 \\
 \frac{-5h}{-5} = \frac{25}{-5} \\
 \boxed{h = -5}
 \end{array}$$

$$\begin{array}{r}
 14. \quad 7n + 6n - 5 = 4n + 4 \\
 13n - 5 = 4n + 4 \\
 13n - 5 - 4n = 4n + 4 - 4n \\
 9n - 5 = 4 \\
 9n - 5 + 5 = 4 + 5 \\
 9n = 9 \\
 \frac{9n}{9} = \frac{9}{9} \\
 \boxed{n = 1}
 \end{array}$$

$$\begin{array}{r}
 15. \quad y + 2(y - 5) = 2y + 2 \\
 y + 2(y) + 2(-5) = 2y + 2 \\
 y + 2y - 10 = 2y + 2 \\
 3y - 10 = 2y + 2 \\
 3y - 10 - 2y = 2y + 2 - 2y \\
 y - 10 = 2 \\
 y - 10 + 10 = 2 + 10 \\
 \boxed{y = 12}
 \end{array}$$

$$\begin{array}{r}
 16. \quad -9x + 7 = 3x + 19 \\
 -9x + 7 - 3x = 3x + 19 - 3x \\
 -12x + 7 = 19 \\
 -12x + 7 - 19 = 19 - 19 \\
 -12x - 12 = 0 \\
 -12x - 12 + 12 = 0 + 12 \\
 -12x = 12 \\
 \frac{-12x}{-12} = \frac{12}{-12} \\
 \boxed{x = -1}
 \end{array}$$