# 1 Chapter Review

## Review Key Vocabulary

absolute value equation, *p. 24*          literal equation, *p. 28*

## Review Examples and Exercises

### 1.1 Solving Simple Equations *(pp. 2–9)*

The *boiling point* of a liquid is the temperature at which the liquid becomes a gas. The boiling point of mercury is about $\frac{41}{200}$ of the boiling point of lead. Write and solve an equation to find the boiling point of lead.

Let $x$ be the boiling point of lead.

$$\frac{41}{200}x = 357 \qquad \text{Write the equation.}$$
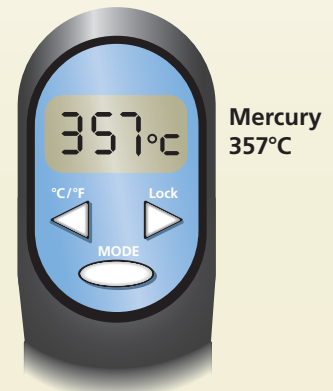
$$\frac{200}{41}\cdot\left(\frac{41}{200}x\right) = \frac{200}{41}\cdot 357 \qquad \text{Multiply each side by } \frac{200}{41}.$$

$$x \approx 1741 \qquad \text{Simplify.}$$

**Mercury 357°C**

The boiling point of lead is about 1741°C.

### Exercises

Solve the equation. Check your solution.

**1.** $y + 8 = -11$   **2.** $3.2 = -0.4n$   **3.** $-\frac{t}{4} = -3\pi$

### 1.2 Solving Multi-Step Equations *(pp. 10–15)*

**a.** Solve $-4p - 9 = 3$.

$$-4p - 9 = 3$$
$$\underline{+9 \quad +9}$$
$$-4p = 12$$
$$\frac{-4p}{-4} = \frac{12}{-4}$$
$$p = -3$$

The solution is $p = -3$.

**b.** Solve $-14x + 28 + 6x = -44$.

$$-14x + 28 + 6x = -44$$
$$-8x + 28 = -44$$
$$\underline{-28 \quad -28}$$
$$-8x = -72$$
$$\frac{-8x}{-8} = \frac{-72}{-8}$$
$$x = 9$$

The solution is $x = 9$.

## Exercises

**Solve the equation. Check your solution.**

**4.** $7y + 15 = -27$  **5.** $8 - \dfrac{3}{2}b = 11$  **6.** $-2(3z + 1) - 10 = 4$
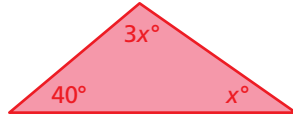
**7.** $-3n - 2n + 9 = 29$  **8.** $2.5(4x - 6) - 5 = 10$  **9.** $\dfrac{2}{5}w + \dfrac{4}{5}w - 4 = 1$

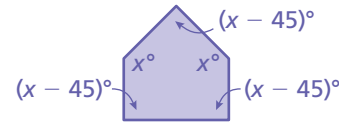**Find the value of $x$. Then find the angle measures of the polygon.**

**10.**



$3x°$
$40°$  $x°$

Sum of angle
measures: 180°

**11.**



$x°$  $x°$
$\dfrac{1}{2}x°$  $\dfrac{1}{2}x°$

Sum of angle
measures: 360°

**12.**



$(x - 45)°$
$x°$  $x°$
$(x - 45)°$  $(x - 45)°$

Sum of angle
measures: 540°

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**1.3**  ### Solving Equations with Variables on Both Sides   *(pp. 18–25)*

**a.  Solve $3n - 2 = 11n + 18$.**

$$3n - 2 = 11n + 18 \qquad \text{Write the equation.}$$

$$\underline{-11n \qquad\quad -11n} \qquad \text{Subtract } 11n \text{ from each side.}$$

$$-8n - 2 = 18 \qquad \text{Simplify.}$$

$$\underline{+2 \qquad +2} \qquad \text{Add 2 to each side.}$$

$$-8n = 20 \qquad \text{Simplify.}$$

$$\dfrac{-8n}{-8} = \dfrac{20}{-8} \qquad \text{Divide each side by } -8.$$

$$n = -\dfrac{5}{2} \qquad \text{Simplify.}$$

∴  The solution is $n = -\dfrac{5}{2}$.

**b.  Solve $|x - 7| = 3$.**

$$|x - 7| = 3 \qquad\qquad\qquad \text{Write the equation.}$$

$$x - 7 = 3 \qquad or \qquad x - 7 = -3 \qquad \text{Write two related linear equations.}$$

$$\underline{+7 \quad +7} \qquad\qquad\quad \underline{+7 \quad +7} \qquad \text{Add 7 to each side.}$$

$$x = 10 \qquad or \qquad x = 4 \qquad\qquad \text{Simplify.}$$

∴  The solutions are $x = 4$ and $x = 10$.

## Exercises

**Solve the equation. Check your solution, if possible.**

**13.** $5m - 1 = 4m + 5$     **14.** $3(5p - 3) = 5(p - 1)$    **15.** $\frac{2}{5}n + \frac{1}{10} = \frac{1}{2}(n + 4)$

**Solve the equation. Check your solutions, if possible.**

**16.** $|x + 5| = 17$     **17.** $|2w - 9| = 1$     **18.** $-3|6y - 7| + 10 = -8$

**Rewriting Equations and Formulas**   *(pp. 26–31)*

The equation for a line in slope-intercept form is $y = mx + b$.

**Solve the equation for $x$.**

$$y = mx + b \qquad \text{Write the equation.}$$

$$y - b = mx + b - b \qquad \text{Subtract } b \text{ from each side.}$$

$$y - b = mx \qquad \text{Simplify.}$$

$$\frac{y - b}{m} = \frac{mx}{m} \qquad \text{Divide each side by } m.$$

$$\frac{y - b}{m} = x \qquad \text{Simplify.}$$

So, $x = \dfrac{y - b}{m}$.

## Exercises

**Solve the equation for $y$.**

**19.** $5x - 5y = 30$     **20.** $14 = 8x + 2y$     **21.** $1 - 2y = -x$

**22. a.** The formula $F = \dfrac{9}{5}(K - 273.15) + 32$ converts a temperature from Kelvin $K$ to Fahrenheit $F$. Solve the formula for $K$.

   **b.** Convert $240\,°F$ to Kelvin $K$. Round your answer to the nearest hundredth.

**23. a.** Write the formula for the area $A$ of a trapezoid.

   **b.** Solve the formula for $h$.

   **c.** Use the new formula to find the height $h$ of the trapezoid.