1 Chapter Review

Dynamic Solutions available at *BigIdeasMath.com*

1.1 Solving Simple Equations *(pp. 3–10)*

a. Solve $x - 5 = -9$. Justify each step.

$x - 5 = -9$ — Write the equation.

Addition Property of Equality → $+5 \quad +5$ — Add 5 to each side.

$x = -4$ — Simplify.

▶ The solution is $x = -4$.

b. Solve $4x = 12$. Justify each step.

$4x = 12$ — Write the equation.

Division Property of Equality → $\frac{4x}{4} = \frac{12}{4}$ — Divide each side by 4.

$x = 3$ — Simplify.

▶ The solution is $x = 3$.

Solve the equation. Justify each step. Check your solution.

1. $z + 3 = -6$ **2.** $2.6 = -0.2t$ **3.** $-\frac{n}{5} = -2$

1.2 Solving Multi-Step Equations *(pp. 11–18)*

Solve $-6x + 23 + 2x = 15$.

$-6x + 23 + 2x = 15$ — Write the equation.

$-4x + 23 = 15$ — Combine like terms.

$-4x = -8$ — Subtract 23 from each side.

$x = 2$ — Divide each side by -4.

▶ The solution is $x = 2$.

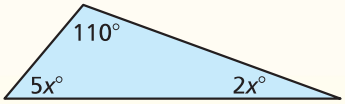
Solve the equation. Check your solution.

4. $3y + 11 = -16$ **5.** $6 = 1 - b$ **6.** $n + 5n + 7 = 43$

7. $-4(2z + 6) - 12 = 4$ **8.** $\frac{3}{2}(x - 2) - 5 = 19$ **9.** $6 = \frac{1}{5}w + \frac{7}{5}w - 4$

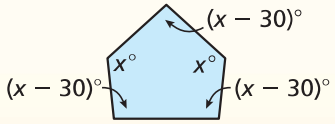
Find the value of x. Then find the angle measures of the polygon.

10.



Sum of angle measures: 180°

11.



Sum of angle measures: 540°

1.3 Solving Equations with Variables on Both Sides *(pp. 19–24)*

Solve $2(y - 4) = -4(y + 8)$.

$2(y - 4) = -4(y + 8)$ — Write the equation.

$2y - 8 = -4y - 32$ — Distributive Property

$6y - 8 = -32$ — Add $4y$ to each side.

$6y = -24$ — Add 8 to each side.

$y = -4$ — Divide each side by 6.

▶ The solution is $y = -4$.

Solve the equation.

12. $3n - 3 = 4n + 1$ **13.** $5(1 + x) = 5x + 5$ **14.** $3(n + 4) = \frac{1}{2}(6n + 4)$

1.4 Solving Absolute Value Equations *(pp. 27–34)*

a. Solve $|x - 5| = 3$.

$x - 5 = 3$ *or* $x - 5 = -3$ — Write related linear equations.

$+5 \quad +5$ $\qquad$ $+5 \quad +5$ — Add 5 to each side.

$x = 8$ $\qquad$ $x = 2$ — Simplify.

▶ The solutions are $x = 8$ and $x = 2$.

b. Solve $|2x + 6| = 4x$. Check your solutions.

$2x + 6 = 4x$ *or* $2x + 6 = -4x$ — Write related linear equations.

$-2x \quad -2x$ $\qquad$ $-2x \quad -2x$ — Subtract $2x$ from each side.

$6 = 2x$ $\qquad$ $6 = -6x$ — Simplify.

$\frac{6}{2} = \frac{2x}{2}$ $\qquad$ $\frac{6}{-6} = \frac{-6x}{-6}$ — Solve for x.

$3 = x$ $\qquad$ $-1 = x$ — Simplify.

Check the apparent solutions to see if either is extraneous.

▶ The solution is $x = 3$. Reject $x = -1$ because it is extraneous.

Check

$|2x + 6| = 4x$

$|2(3) + 6| \stackrel{?}{=} 4(3)$

$|12| \stackrel{?}{=} 12$

$12 = 12$ ✓

$|2x + 6| = 4x$

$|2(-1) + 6| \stackrel{?}{=} 4(-1)$

$|4| \stackrel{?}{=} -4$

$4 \neq -4$ ✗

Solve the equation. Check your solutions.

15. $|y + 3| = 17$ **16.** $-2|5w - 7| + 9 = -7$ **17.** $|x - 2| = |4 + x|$

18. The minimum sustained wind speed of a Category 1 hurricane is 74 miles per hour. The maximum sustained wind speed is 95 miles per hour. Write an absolute value equation that represents the minimum and maximum speeds.

1.5 Rewriting Equations and Formulas *(pp. 35–42)*

a. The slope-intercept form of a linear equation is $y = mx + b$. Solve the equation for m.

$y = mx + b$	Write the equation.
$y - b = mx + b - b$	Subtract b from each side.
$y - b = mx$	Simplify.
$\frac{y - b}{x} = \frac{mx}{x}$	Divide each side by x.
$\frac{y - b}{x} = m$	Simplify.

▶ When you solve the equation for m, you obtain $m = \frac{y - b}{x}$.

b. The formula for the surface area S of a cylinder is $S = 2\pi r^2 + 2\pi rh$. Solve the formula for the height h.

$S = 2\pi r^2 + 2\pi rh$	Write the equation.
$-2\pi r^2 \quad -2\pi r^2$	Subtract $2\pi r^2$ from each side.
$S - 2\pi r^2 = 2\pi rh$	Simplify.
$\frac{S - 2\pi r^2}{2\pi r} = \frac{2\pi rh}{2\pi r}$	Divide each side by $2\pi r$.
$\frac{S - 2\pi r^2}{2\pi r} = h$	Simplify.

▶ When you solve the formula for h, you obtain $h = \frac{S - 2\pi r^2}{2\pi r}$.

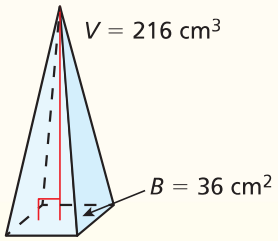
Solve the literal equation for y.

19. $2x - 4y = 20$ **20.** $8x - 3 = 5 + 4y$ **21.** $a = 9y + 3yx$

22. The volume V of a pyramid is given by the formula $V = \frac{1}{3}Bh$, where B is the area of the base and h is the height.

a. Solve the formula for h.

b. Find the height h of the pyramid.



23. The formula $F = \frac{9}{5}(K - 273.15) + 32$ converts a temperature from kelvin K to degrees Fahrenheit F.

a. Solve the formula for K.

b. Convert 180°F to kelvin K. Round your answer to the nearest hundredth.