

p 293

$$7. \quad 12w - 15 = 7w$$

$$-15 = -5w$$

$$-15 = \frac{-15}{-5} = \frac{-5w}{-5}$$

$$3 = w$$

Opposites $3 + -3 = 0$

$$-5 + 5 = 0$$

$$4x + -4x = 0$$

$$-2y + 2y = 0$$

$4a$ ^{-4a} Zero out

$-dr$ ^{+2r}

$12w$ ^{-12w}

$7z$ ^{-7z}

$-4m$ ^{+4m}

-15 ⁺¹⁵

9.

$$3r - 8 = 5r - 20$$

$$-5r$$

$$-2r - 8 = -20$$

$$+8$$

$$\frac{-2r}{-2} = \frac{-12}{-2}$$

$$r = 6$$

$$13. \quad \overset{+13}{18} + 2w = 7w - \overset{+13}{13}$$

$$\overset{-2w}{31} + \overset{-2w}{2w} = \overset{-2w}{7w}$$

$$\overset{31}{5} = \overset{5w}{5}$$

$$6\frac{1}{5} = w$$

$$w = 6\frac{1}{5}$$

15.

$$5x - 7 = 2x + 2$$

$$5x - 9 = 2x - 5x$$

Variable terms
on one side
Constants
on other side

$$-9 = 3x$$

$$\frac{-9}{3} = \frac{3x}{3}$$

$$3 = x$$

17. Distribute

$$2(y-3) + 4y + 8 = 3(y+6)$$

$$2y - 6 + 4y + 8 = 3y + 18$$

Combine Like Terms

$$6y - 3y + 2 = 3y + 18$$

$$3y + 2 = 18 - 2$$

$$3y = 16$$

$$y = 5\frac{1}{3}$$

Variable
terms on
one side
Constants
on the other
side

19.

$$4t - 5 + 8t = 7(t + 6)$$

$$4t - 5 + 8t = 7t + 42$$

$$12t - 5 = 7t + 42$$

$$5t - 5 = 42$$

$$\frac{5t}{5} = \frac{47}{5}$$

$$t = 9\frac{2}{5}$$

16.

$$7m + 2(m-3) = 3m - 14$$

$$7m - 2m + 6 = 3m - 14$$

$$5m + 6 = 3m - 14$$

$$2m + 6 = -14$$

$$\frac{2m}{2} = \frac{-20}{2}$$

$$m = -10$$