CHAPTER 4 Equations
4.2 Solve Multi-Step Equations
Solving an Equation Involving Brackets and Checking

Example:
a) Solve the equation $5(x + 1) = 3(x - 1)$.
b) Solve the equation $4(y - 3) = -2(y + 6)$. Check your solution.

Solution:

a)
$$5(x+1) = 3(x-1)$$
$$5x+5 = 3x-3$$
$$5x+5-3x-5 = 3x-3-3x-5$$
$$2x = -8$$
$$\frac{2x}{2} = \frac{-8}{2}$$
$$x = -4$$

The solution is $x = -4$.

b)
$$4(y-3) = -2(y+6)$$
$$4y-12 = -2y-12$$
$$4y-12+2y+12 = -2y-12+2y+12$$
$$6y = 0$$
$$\frac{6y}{6} = \frac{0}{6}$$
$$y = 0$$

Check: Substitute $y = 0$.

$$\text{L.S.} = 4(y-3) \qquad \text{R.S.} = -2(y+6)$$
$$= 4(0-3) \qquad\qquad = -2(0+6)$$
$$= 4(-3) \qquad\qquad\quad = -2(6)$$
$$= -12 \qquad\qquad\quad\;\; = -12$$

$$\text{L.S.} = \text{R. S.}$$

Therefore, $y = 0$ is the correct solution.

Practice:

1. Solve: $3(x - 5) = 2(x - 3)$.

2. Solve and check: $7(y - 1) = 3(y + 7)$.

Answers:
1. $x = 9$ **2.** $y = 7$