A <u>linear equation in one variable</u> can be written in the form $ax + b = 0$.

Problems

Solve the linear equation.

1. $7x + 5 = 26$

$$\frac{-5 \quad -5}{7x = 21} \implies x = \frac{21}{7} = \boxed{3}$$

2. $7m + 18 = 9m - 2$

$$\frac{-7m \qquad -7m}{18 = 2m - 2}$$
$$\frac{+2 \qquad +2}{20 = 2m}$$
$$\boxed{10 = m}$$

$7(10) + 18 \quad = \quad 9(10) - 2$

$70 + 18 \qquad\qquad 90 - 2$

$88 \qquad \overset{\checkmark}{=} \qquad 88$

3. $-3y + 9 = -3(2y + 4)$

$$-3y + 9 = -6y - 12$$
$$\frac{+6y \qquad\qquad +6y}{3y + 9 = -12}$$
$$\frac{-9 \qquad -9}{3y = -21}$$

$y = \frac{-21}{3}$

$\implies \boxed{y = -7}$

4. $4(2x - 1) - 2(2x) = 2$

$\boxed{8x} - 4 \; \ominus \; \oval{4x} = 2 \implies \boxed{8x - 4x} - 4 = 2$

$$4x - 4 = 2$$
$$\frac{+4 \qquad +4}{}$$

$\frac{4x}{4} = \frac{6}{4}$

$x = \frac{6}{4} = \boxed{\frac{3}{2}}$

5. $0.50x + 0.35(50) = 29.5$

$$0.50x + 17.5 = 29.5$$
$$\frac{-17.5 \quad -17.5}{0.50x = 12}$$

$$x = \frac{12}{0.50} = \boxed{24}$$

6. $0.04(x - 4) + 0.10x = 0.06x - 0.9$

$$\boxed{0.04x} - 0.16 + \boxed{0.10x} = 0.06x - 0.9$$

$$0.14x - 0.16 = 0.06x - 0.9$$
$$-0.06x \qquad\qquad -0.06x$$

$$0.08x - 0.16 = -0.9 \qquad\qquad 0.08x = -0.74$$
$$+0.16 \qquad +0.16$$

$$\boxed{x = -9.25}$$

Write the following as an equation. Then solve.

7. The sum of ten times a number, and fifty-five, is equal to nine times the number. Find the number.

$$10x + 55 = 9x$$
$$-10x \qquad\qquad -10x$$

$$55 = -1x$$

$$\boxed{-55 = x}$$

8. Five times a number, minus four, is equal to four times the number, plus six.

$$5x - 4 = 4x + 6$$
$$-4x \qquad\qquad -4x$$

$$x - 4 = 6$$
$$+4 \qquad +4$$

$$\boxed{x = 10}$$