

Solving Multi-Step Equations

Undo addition/subtraction first

Undo multiplication/division second

- make sure that whatever operation is done to one side of the equation must be done to the other side of the equation.

Solve 1) $5y - 3 = -23$

$+3 \quad +3$

$$\frac{5y}{5} = -\frac{20}{5}$$

$$y = -4$$

Solve 2) $x - 3x + 8 = 18$

$$\underbrace{x - 3x} + 8 = 18$$
$$-2x + 8 = 18$$

$$\quad - 8 \quad - 8$$

$$\frac{-2x}{-2} = \frac{10}{-2}$$

$$x = -5$$

Solve 3) $\frac{1}{3}m + 17 = 33$
 $\quad\quad\quad -17 \quad\quad -17$

$$\frac{1}{3}m = 16$$

$$\frac{\cancel{3}}{\cancel{1}} \cdot \frac{\cancel{1}}{\cancel{3}} m = \frac{16}{1} \cdot \frac{3}{1}$$

$$m = 48$$

Solve 4) $-\frac{2}{3}c - \frac{4}{5} = 2\frac{1}{3}$

$+ \frac{4}{5} \quad + \frac{4}{5}$

$$-\frac{2}{3}c = \frac{4}{5} + \frac{7}{3}$$

$$-\frac{2}{3}c = \frac{12}{15} + \frac{35}{15}$$

$$\frac{3}{2} \cdot -\frac{2}{3}c = \frac{47}{5} \cdot \frac{3}{2}$$

$$c = -\frac{47}{10} \text{ or } -4\frac{7}{10}$$

Solve 5) $4n - 3 = 2\frac{1}{2}$

$+ 3 \qquad + 3$

$$4n = 5\frac{1}{2}$$

other
method

$$\frac{1}{4} \cdot \cancel{4}n = \frac{11}{2} \cdot \frac{1}{4}$$
$$= \frac{11}{8}$$

$$\frac{11}{2} \div 4$$
$$\frac{11}{2} \times \frac{1}{4}$$