

SOLVING SIMPLE EQUATIONS

We want to get the variable (letter) by itself. We need to get rid of any numbers or other letters on the same side of the =.

- 1) If necessary, put equation in “normal” order (x first)

$$-8 + 7x \rightarrow 7x - 8$$

$$4 - 6x \rightarrow -6x + 4$$

- 2) Read equation. Whatever you say last, you get rid of first.
- 3) Use inverse (opposite) operations to get the letter by itself.

$$+ \xleftarrow{\text{opposite}} - \qquad \times \xleftarrow{\text{opposite}} \div$$

- 4) Whatever we do on the x-side, we must do on the other side, to keep equation equal.

Examples

1.

$$\begin{array}{r} x - 3 = 12 \\ + 3 \quad + 3 \\ \hline \boxed{x = 15} \end{array}$$

2.

$$\begin{array}{r} -3x = 24 \\ \hline -3 \quad -3 \\ \hline \boxed{x = -8} \end{array}$$

3.

$$\cancel{5} \cdot \frac{x}{\cancel{5}} = 3 \cdot 5$$

$$\boxed{x = 15}$$

4.

$$\frac{3x}{5} - 8 = -2$$

$$\quad \quad \quad \cancel{+8} \quad \quad \quad \cancel{+8}$$

$$\cancel{5} \cdot \frac{3x}{\cancel{5}} = 6 \cdot 5$$

$$\frac{\cancel{3}x}{\cancel{3}} = \frac{30}{3}$$

$$\boxed{x = 10}$$

5.

$$\frac{4x-2}{5} + 1 = 3$$

$$\quad \quad \quad \cancel{-1} \quad \quad \quad \cancel{-1}$$

$$\cancel{5} \cdot \frac{4x-2}{\cancel{5}} = 2 \cdot 5$$

$$4x - 2 = 10$$

$$\quad \quad \quad \cancel{+2} \quad \quad \quad \cancel{+2}$$

$$\frac{\cancel{4}x}{\cancel{4}} = \frac{12}{4}$$

$$\boxed{x = 3}$$