

**Solving
Equations**

LEQ: Which operation do you use to solve an equation?

steps:

1. Identify the operation in the equation.

$$-15 = -3m$$

2. Perform the Inverse Operation.

$$\frac{-15}{-3} = \frac{-3m}{-3}$$

3. Solve.

$$5 = m$$

4. Check.

$$-15 = -3(5)$$

$$-15 = -15 \quad \checkmark$$

**We Do
Together**

$$v/6 = -12$$

**Solving
Equations**

LEQ: Which operation do you use to solve an equation?

steps:

1. Identify the operation in the equation.

$$-15 = m + 10$$

2. Perform the Inverse Operation.

$$\underline{-15 = m + 10}$$

$$\underline{-10 \quad -10}$$

3. Solve.

$$-25 = m$$

4. Check.

$$-15 = (-25) + 10$$

$$-15 = -15 \quad \checkmark$$

**We Do
Together**

$$y - 9 = -1$$

LEQ: How do I solve equations with fractions?

Inverse Operations

Multiplicative Inverse Property

2 methods:

Opposite operations

To solve an equation that has a fractional coefficient, you can multiply each side of the equation by the fraction's multiplicative inverse (DIVIDE).

1) Copy the problem

$$\frac{4}{7}x = -12$$

2) Multiply each side by the reciprocal

$$\left(\frac{7}{4}\right) \frac{4}{7}x = -12 \left(\frac{7}{4}\right)$$

3) Solve

$$1x = -12 \left(\frac{7}{4}\right)$$

$$1x = \frac{-12 \cdot 7}{1 \cdot 4}$$

$$x = \frac{-84}{4}$$

$$x = -21$$

1) Copy the problem

$$\frac{4}{7}x = -12$$

2) Multiply the denominator by the whole number

$$7 \times -12 = -84$$

$$-84 \div 4$$

$$x = -21$$

3) Divide by the numerator

MULTIPLICATIVE INVERSE = RECIPROCAL

LCM Method

1) Find LCM $y - \frac{2}{3} = \frac{1}{2}$

2) Multiply the LCM by each term $(6)y - \frac{(6)2}{3} = \frac{(6)1}{2}$

3) Simplify $6(y) - 2(2) = 3(1)$

4) Solve

$$\begin{array}{r} 6y - 4 = 3 \\ \underline{\quad +4 \quad +4} \end{array}$$

$$6y = 7$$

$$\frac{6}{6}y = \frac{7}{6}$$

$$y = 1\frac{1}{6}$$

Standard Method

1) Box the variable. $\boxed{y} - \frac{2}{3} = \frac{1}{2}$

2) Perform the inverse operation.

$$\begin{array}{r} \boxed{y} - \frac{2}{3} = \frac{1}{2} = \frac{3}{6} \\ + \frac{2}{3} = \frac{2}{3} = \frac{4}{6} \\ \hline \boxed{y} = \frac{7}{6} = 1\frac{1}{6} \end{array}$$

3) Solve. $\boxed{y} = \frac{7}{6} = 1\frac{1}{6}$