

WARM UP

1) Below are the temperatures recorded in Chicago, IL: -1, 14, 12, -3. What is the range between the temperatures recorded in Chicago?

2) In a Sweet Potato Pie recipe, Mrs. Oates used 2 cups of sugar. Ms. Jenkins used $\frac{5}{7}$ cups less than Mrs. Oates. How much sugar did Ms. Jenkins use?

3) What is the value of $\frac{3}{7}$ in decimal form?

4) Find the value of $4(4.5) + 4(.25)$

**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**

$$y - 9 = -1$$

$$5m = -30$$

$$\frac{b}{4} = 16$$

$$7 - w = 22$$

Hint: You want to have the positive value of the variable.

Two Step Equations

- 1) move the constant*
- 2) move the coefficient*
- 3) check your solution*

ex) $3x - 4 = 8$

ex) $\frac{x}{5} + 7 = 13$

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) Simplify

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

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

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

$$x = -21$$

1) Keep Change Flip

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

2) Cross Cancel

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

3) Multiply

$$-84 \div 4$$

$$x = -21$$

MULTIPLICATIVE INVERSE = RECIPROCAL

Solving Equations with fractions

- 1) Find the LCM for all denominators.
- 2) Multiply each term by LCM
 - divide by denominator
 - multiply by numerator
- 3) Move the constant (add/subtract) LCM(2,3,4): 12
- 4) Move the coefficient (divide)

$$\text{Ex)} \quad 12 \left(\frac{1 \cdot 6}{2} x + \frac{2 \cdot 4}{3} = \frac{5 \cdot 3}{4} \right)$$

$$\begin{array}{r} 6x + 8 = 15 \\ -8 \quad -8 \\ \hline \end{array}$$

$$\begin{array}{r} 6x = 7 \\ \overline{6} \quad \overline{6} \\ \boxed{x = \frac{7}{6}} \end{array}$$

$$\frac{5}{6}x = 20$$

$$\frac{4}{11} = -17x$$

$$\frac{6}{11}x = -4$$

LCM Method

Standard 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

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

$$6y = 7$$

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

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

1) Box the variable.

$$\boxed{y} - \frac{2}{3} = \frac{1}{2}$$

2) Perform the inverse operation.

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

3) Solve.

$$\boxed{y} = \frac{7}{6} = 1\frac{1}{6}$$

$$c + \frac{1}{8} = \frac{3}{4}$$

$$h - \frac{2}{5} = -1\frac{3}{10}$$

2-Step Equations in Words

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.