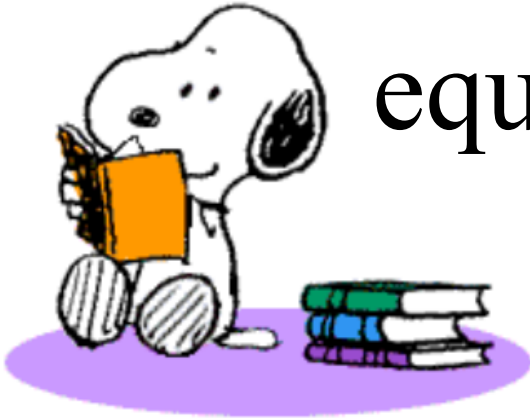


1/19/10

Objective:

TSWBAT solve fraction  
equations.



## Solve Equations by Multiplying

Solve  $\frac{x}{8} = 20$

### 1. Multiply each side by the denominator.

a. Write the denominator as a fraction.

$$\frac{8}{1} \left( \frac{x}{8} \right) = 20 \left( \frac{8}{1} \right)$$

b. simplify by cross canceling and multiply.

$$\overset{1}{\cancel{8}} \cdot \frac{x}{\cancel{8}_1} = 20 \cdot 8$$

### 2. Simplify if necessary.

$$1x = 160 \rightarrow x = 160$$

### Practice:

$$\textcircled{1} \frac{x}{2} = 15 \quad x = 15 \cdot 2 \rightarrow x = 30$$

$$\textcircled{2} \frac{n}{6} = 12 \quad n = 12 \cdot 6 \rightarrow n = 72$$

## Using Reciprocals to Solve Equations

Solve  $\frac{2}{3}x = 8$  and check the solution.

1. Multiply each side by the reciprocal of the fraction that is next to the variable.

$$\left(\frac{3}{2}\right) \frac{2}{3}x = 8 \left(\frac{3}{2}\right)$$
$$x = \frac{8}{1} \cdot \frac{3}{2} \rightarrow x = \frac{12}{1} = 12$$

2. Check by replacing the variable with the answer you just got.

$$\frac{2}{3}(12) = 8 \rightarrow \frac{2}{3} \cdot \frac{12}{1} = 8$$
$$8 = 8 \checkmark$$

Practice:

$$\textcircled{1} \frac{9}{10}x = 18 \quad x = 18 \left(\frac{10}{9}\right)$$

$$\textcircled{2} \frac{4}{5}x = 20 \quad x = 20 \left(\frac{5}{4}\right)$$

$$\textcircled{3} \frac{7}{8}x = 42$$

## Writing and Solving Equations

Students are making banners to support friends in a national spelling bee. They have 6 yards of material. Each banner takes  $\frac{5}{8}$  yard of material. How many banners can they make?

1. Write an equation.

$$\frac{5}{8}x = 6$$

2. Multiply each side by the reciprocal of the fraction next to the variable.

$$x = 6 \cdot \frac{8}{5} = \frac{48}{5}$$

3. Simplify.

$$\begin{array}{r} \textcircled{9} \\ \hline \textcircled{5} \overline{)48} \\ \underline{-45} \\ \textcircled{3} \end{array}$$

$$9 \frac{3}{5}$$

Three smiley faces are drawn above the fraction  $\frac{3}{5}$ .

Practice:

$$\textcircled{1} \frac{x}{3} = 12$$

$$\textcircled{2} \frac{a}{7} = 8$$

$$\textcircled{3} \frac{j}{12} = 27$$

$$\textcircled{4} \frac{x}{5} = 35$$

$$\textcircled{5} \frac{v}{4} = 11$$

$$\textcircled{6} \frac{1}{2}m = 6$$

$$\textcircled{7} \frac{2}{3}r = 10$$

$$\textcircled{8} \frac{3}{5}n = 9$$

$$\textcircled{9} \frac{7}{8}p = 21$$

$$\textcircled{10} \frac{4}{5}y = 8$$

# Homework: Practice 5-5

