# Dividing by a Fraction or Multiplying by the Reciprocal

Name _____

Date _____ Period _____

## Multiplication Property of Equality

If $a = b$, then $a \cdot c = b \cdot c$

We can multiply both sides of an equation by the same value and the equation is still a true statement.

## Division Property of Equality

If $a = b$, then $a \div c = b \div c$

We can divide both sides of an equation by the same value and the equation is still a true statement.

## Inverse Operations

Pairs of operations that "undo" each other.

Multiplication and Division are Inverse Operations

Multiplication and Division "undo" each other.

| | | |
|---|---|---|
| Any operation done to the left side... | = | ...must be done to the right side |
| ...must be done to the left side | | Any operation done to the right side... |

Solve the following equations for $x$

$$\frac{3}{4}x = 12$$

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Dividing by a fraction is the same as multiplying by the reciprocal

Solve the following equations for $x$

$$\frac{4}{5}x = 20$$

$$\frac{1}{3}x = 13$$

Dividing by a fraction is the same as multiplying by the reciprocal

Solve the following equations for $x$

$\frac{2}{7}x = -8$ $-\frac{3}{5}x = 12$

Dividing by a fraction is the same as multiplying by the reciprocal

Solve the following equations for $x$

$-\frac{1}{2}x = -9$ $\frac{3}{4}x = \frac{4}{7}$

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Multiplying by the reciprocal