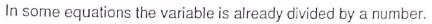
The Multiplication Principle for Equations



$$\frac{x}{5} = 14$$

$$\frac{x}{25} = -18$$

We can use the Multiplication Principle to solve these equations. The Multiplication Principle says that if you multiply both sides of an equation by the same number (except 0), the new equation you get will be equivalent to the equation you started with.

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

$$5 \cdot \frac{x}{5} = |4 \cdot 5|$$

$$x = 70$$

$$\frac{x}{25} = -18$$

$$25 \cdot \frac{x}{25} = -18 \cdot 25$$

$$x = -450$$

$$18$$

$$x = -450$$

$$36$$

$$450$$

Solve each equation using the Multiplication Principle.

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$$\frac{\cancel{6} \cdot \cancel{\frac{x}{\cancel{6}}}}{\cancel{\frac{x}{\cancel{6}}}} = 5 \cdot 6 \qquad \frac{\cancel{\frac{x}{\cancel{2}}}}{\cancel{-2}} = 12 \qquad \frac{\cancel{\frac{x}{\cancel{4}}}}{\cancel{-2}} = 10 \qquad \frac{\cancel{\frac{x}{\cancel{9}}}}{\cancel{-2}} = -8$$

$$\frac{\cancel{x}}{\cancel{10}} = 42 \qquad \frac{\cancel{x}}{\cancel{-2}} = -8 \qquad \frac{\cancel{x}}{\cancel{-8}} = -2 \qquad \frac{\cancel{x}}{\cancel{-6}} = 8$$

$$\frac{\cancel{x}}{\cancel{-10}} = 2 \qquad \frac{\cancel{x}}{\cancel{-10}} = -10 \qquad \frac{\cancel{x}}{\cancel{-15}} = 0$$

$$9 = \frac{\cancel{x}}{\cancel{9}} \qquad 1 = \frac{\cancel{x}}{\cancel{-24}} \qquad 13 = \frac{\cancel{x}}{\cancel{-3}} \qquad 11 = \frac{\cancel{x}}{\cancel{-80}}$$

$$\frac{x}{22} = 15$$
 $\frac{x}{16} = 18$ $\frac{x}{100} = 34$ $\frac{x}{24} = -56$

Some equations, like 5x = 30, are easy to solve in your head. When the numbers in the equation are larger we can use the Division Principle to find the solution.

The Division Principle says that if we divide both sides of an equation by the same number the new equation we get will be equivalent to the equation we started with.

$$3x = 192$$

$$\frac{3x}{3} = \frac{192}{3}$$

$$x = 64$$

$$\frac{18}{12}$$

$$\frac{12}{3}$$

Solve each equation using the Division Principle.

Solve each equation using the	Division Finciple.	
If I multiply by 3, then divide by 3, I get the number I started with: X.	4x = -96	-3 _x = -57
$\frac{\mathring{\mathcal{S}}_{x}}{3} = \frac{72}{3}$	9x = 315	-2x = 656
3 3		
x = 24		
4x = 112	-12x = -288	6x = -654
-455 = 5 _x	536 = 8x	-715 = -11x
25x = 600	84x = -1260	$21_{x} = 13419$
70x = 21000	-1x = 45	$-\chi = 23$