

## MORE SOLVING EQUATIONS

When solving equations with fractions, there are two methods:

Method I: [this method **ONLY** works for **SIMPLE** equations with fractions]

We can multiply **BOTH** sides of the equation by the **Reciprocal** of the fraction being multiplied by the variable.

↳ example 1: Solve for x:

$$\frac{4}{3}x = 7$$

Here we can multiply both sides of the equation by  $\frac{3}{4}$  to isolate the variable:

$$\left(\frac{3}{4}\right)\frac{4}{3}x = 7\left(\frac{3}{4}\right)$$

$$x = \frac{21}{4}$$

Remember: this method used in example 1 **ONLY** works for **SIMPLE** equations with fractions!

Method 2: [this method ALWAYS works!]  
We can multiply both sides of the equation by the LCD. This is known as "clearing the fractions".

↳ example 2: solve for x:

$$\frac{2}{3}x = \frac{1}{6} - \frac{3}{4}$$

$$\text{LCD} = \underline{12}$$

$$(12)\left(\frac{2}{3}x\right) = (12)\left(\frac{1}{6} - \frac{3}{4}\right)$$

Now we must distribute the right hand side

$$(12)\left(\frac{2}{3}x\right) = (12)\left(\frac{1}{6}\right) - (12)\left(\frac{3}{4}\right)$$

$$\underline{\hspace{2cm}} x = \underline{\hspace{2cm}} - \underline{\hspace{2cm}}$$

$$\underline{\hspace{2cm}} x = \underline{\hspace{2cm}}$$

$$x =$$

Using this method of clearing the fractions, we can solve difficult equations.

↳ EXAMPLE 3: SOLVE FOR X:

$$-\frac{3}{4}x + \frac{2}{3} - \frac{5}{6}x = \frac{7}{8} + \frac{1}{2}$$

LCD = \_\_\_\_\_

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## Practice Problems

Solve each equation:

1.  $\frac{3}{2}x = 4$

2.  $\frac{5}{4}x = \frac{2}{3} + \frac{1}{2}$

3.  $-\frac{1}{4}x + \frac{1}{3} - \frac{5}{6}x = \frac{7}{8} + \frac{1}{2}$