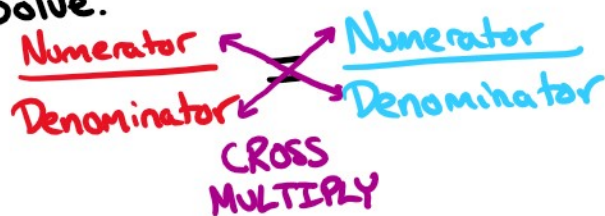


7.7 Solving Rational Equations

Wednesday, June 19, 2019 9:47 AM

Solve.



$$N \cdot D = N \cdot D$$

ex

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

$$1 \cdot x = 3 \cdot 2 \quad \leftarrow \text{NO FRACTIONS!}$$

$$x = 6$$

ex

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

Distribute

$$x \cdot 3 = 4 \cdot (x-3)$$

$$3x = 4x - 12$$

$$\begin{array}{r} -4x \\ -1x = -12 \\ -1 \end{array}$$

$$x = 12$$

ex

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

$$2 \cdot 3 = 3x \cdot 4$$

$$6 = 12x$$

$$\frac{1}{2} = x$$

ex

$$\frac{x+2}{3} = \frac{x}{x-2}$$

$$(x+2) \cdot (x-2) = x \cdot 3$$

FOIL

$$x^2 - 2x + 2x - 4 = 3x$$

$$\begin{array}{r} x^2 - 4 = 3x \\ -3x \quad -3x \\ \hline \end{array}$$

$$x^2 - 3x - 4 = 0$$

When you need to solve an equation that has x^2 and x , then you must get the equation equal to zero and factor

$$\begin{array}{r}
 \text{on} \qquad \text{on} \\
 \hline
 x^2 - 3x - 4 = 0 \\
 \begin{array}{r|l}
 -1 & 4 \\
 1 & -4 \\
 \hline
 2 & -2
 \end{array}
 \end{array}$$

the equation equal to zero and factor.

$$(x+1)(x-4) = 0$$

$$\begin{array}{cc}
 \downarrow & \downarrow \\
 x+1=0 & x-4=0
 \end{array}$$

$$\boxed{x = -1}$$

$$\boxed{x = 4}$$