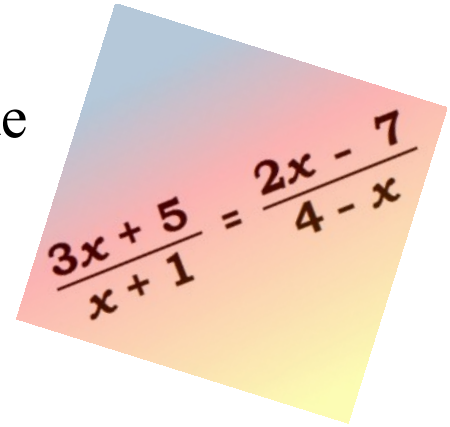
Rational Equations contain at least one rational expression. For example: $\frac{x}{4} - \frac{7}{x} = 3$

Rational Equations can be used to solve several different kinds of problems where two things work together but at different rates.

Working with rational equations is similar to working with rational expressions except that in an equation you must remember that what you do to one side you must also do to the other side!

To solve a rational equation:

- factor each denominator
- identify the non-permissable values
- multiply each side by the lowest common denominator
- isolate the variable on one side
- check your answer



Example 1: $\frac{x}{4} - \frac{7}{x} = 3$

Example 2: $\dfrac{2}{z^2 - 4} + \dfrac{10}{6z + 12} = \dfrac{1}{z - 2}$

Solve and find the non-permissable values.

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

SOLVE THIS...

The sum of the reciprocals of two consecutive integers is 11/30.

What are the integers?

Example 4: $\dfrac{3x}{x-3} + 2 = \dfrac{3x-1}{x+3}$

Example 5: Solve and find the non-permissable values of:

$$\frac{4k - 1}{k + 2} - \frac{k + 1}{k - 2} = \frac{k^2 - 4k + 24}{k^2 - 4}$$