TOPIC: SOLVING RATIONAL EQUATIONS

- A **rational equation** is an equation with a _____ in the _____ of a fraction.
  - We can solve a rational equation by turning it into a _____ equation.

Rational Equation

$$\frac{1}{x-1} = 12$$

- Solutions ***CANNOT*** be any value that makes a denominator _____; this is the _____.

EXAMPLE: Solve the rational equation.

$$\frac{x}{x-1} = \frac{7}{6} \qquad x \neq \_\_\_\_$$

SOLVING RATIONAL EQUATIONS

1) Determine _____ by setting denom. = ____

2) Multiply by ____ to eliminate fractions

3) Solve linear equation

4) Check solution with restriction

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Solution Equal to Restriction

EXAMPLE: Solve the rational equation.

$$\frac{x-5}{x-2} = \frac{-3}{x-2} + 6 \qquad x \neq \_\_\_\_$$

SOLVING RATIONAL EQUATIONS
1) Determine restriction by setting denom. $= 0$
2) Multiply by LCD to eliminate fractions
3) Solve linear equation
4) Check solution with restriction

- If your answer is **equal** to the **restriction**, then there is _____, i.e. solution set = _____.

PRACTICE: Solve the equation.

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

PRACTICE: Solve the equation.

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

PRACTICE: Solve the equation.

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