

Name: _____ Hour: _____ Date: _____

NOTES: Section 8.6 – Solve Rational Equations

Goals: #1 - I can solve a rational equation by cross multiplying.

#2 - I can solve a rational equation by using the least common denominator (LCD).

Homework: Lesson 8.6 Worksheet



Warm Up: Perform the indicated operation and simplify.

1. $\frac{5}{x^2 - 1} + \frac{2x}{x^2 + 5x - 6}$

2. $\frac{x - 4}{3x - 15} - \frac{x + 1}{x^2 - 3x - 10}$

Exploration #1: Work with a partner and solve the following equations.

1. $\frac{4}{x} = \frac{6}{15}$

2. $x(x - 4) = 3(x - 4) + x$

Notes:

When each side of the _____ is a _____ rational expression, we can use _____ to solve the _____ equation.

Examples:

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Example #1: Solve the equation by cross multiplying. Check for extraneous solutions.

1. $\frac{3}{x+1} = \frac{9}{4x+5}$

2. $\frac{1}{2x+5} = \frac{x}{11x+8}$

You practice: Solve the equation by cross multiplying. Check for extraneous solutions.

1. $\frac{3}{5x} = \frac{2}{x-7}$

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

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Notes:

When a rational equation is _____ a proportion, we solve it by _____
each side of the equation by the _____ of each expression.

Example #2: Solve the equation by using the LCD. Check for extraneous solutions.

1. $\frac{8}{x} + \frac{11}{3} = \frac{-14}{x}$

2. $\frac{3x-5}{x+3} = 2 + \frac{8}{(x+3)(x-4)}$

You practice: Solve the equation by using the LCD. Check for extraneous solutions.

1. $\frac{11}{4} - \frac{3}{x} = \frac{5}{2x}$

2. $1 + \frac{4}{x+2} = \frac{9}{x}$

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Example #3: Solve the equation by using the LCD. Check for extraneous solutions.

1.
$$\frac{6x^2}{x^2 - 16} - \frac{3x}{x + 4} = \frac{4}{x - 4}$$

You practice: Solve the equation by using the LCD. Check for extraneous solutions.

1.
$$\frac{8x^2}{x^2 - 9} - \frac{4x}{x + 3} = \frac{2}{x - 3}$$