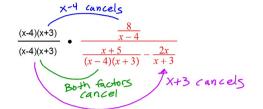
Simplify:
$$\frac{\frac{8}{x-4}}{\frac{x+5}{x^2-x-12} - \frac{2x}{x+3}}$$

Factor all denominators first



Multiply the numerator and denominator of the complex fraction by the LCM of all the denominators: (x-4)(x+3)

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

$$= \frac{8x + 24}{x+5 - 2x^2 + 8x} = \frac{8x + 24}{-2x^2 + 9x + 5}$$

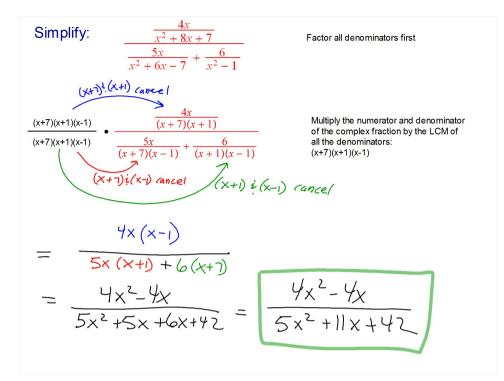
Hwk #9:

Due Monday

Pages 518

Problems 26, 28, 44, 46 - 48

Show work to get credit



Sec 9-6: Solving Rational Equations

$$\frac{2x}{9} + \frac{7}{6} = \frac{5}{3}$$
 LCD

$$\frac{2}{2} \cdot \frac{2x}{9} + \frac{7}{63} = \frac{5}{3} \cdot \frac{6}{6}$$

$$\frac{4x}{18} + \frac{21}{18} = \frac{30}{18}$$

$$4x + 21 = 30$$

$$\frac{4x}{4} = \frac{9}{4}$$

Method 1:

- 1. Make ALL terms in the equation have the same denominator.
- 2. Cancel out all denominators.
- 3. Finish by solving the resulting equation for x.

1 Solve.

$$\frac{2x}{9} + \frac{7}{6} = \frac{5}{3}$$

LCM of the 3 denominators is 18

$$\sqrt{\frac{2x}{9} + \frac{7}{6}} = \left(\frac{5}{3}\right)\sqrt{8}$$

$$\frac{4x - 9}{9}$$

Method 2:

- 1. Find the LCM of ALL denominators in the equation
- 2. Eliminate ALL Denominators by multiplying both sides of the equation by this LCM.
- 3. Finish by solving the resulting

Solve.

2.
$$\frac{4x}{x+1} > \frac{3}{7}$$

You could use any of the three methods but since this is a proportion cross multiplying seems like a good

$$28X = 3(x+i)$$

$$28x = 3x + 3$$

 $-3x = -3x$

1 Solve.

$$\frac{2x}{9} + \frac{7}{6} = \frac{5}{3}$$

 $\frac{2}{2} \cdot \frac{2x}{9} + \frac{7}{63} = \frac{5}{3}$

proportion.

Method 3:

1. Simplify each side of the equation

into a single fraction, creating a

$$\frac{4x+21}{18} \times \frac{5}{3}$$

$$\frac{3(4x+21)}{3} = \frac{90}{3}$$

$$4x + 2/ = 30$$

$$4x +$$

Solve.

3.
$$\frac{2x}{5} = \frac{8}{x+1}$$

$$\frac{2x}{5}$$
 $\times \frac{8}{x+1}$

$$2x(x+1) = 40$$

$$2x^{2} + 2x = 40$$



$$x^{2} + x - 20 = 0$$

 $(x + 5)(x - 4) = 0$

You could use any of the three methods but since this is a proportion cross multiplying seems like a good

4.
$$\frac{6}{x} + \frac{7}{3} = \frac{9}{2x} - \frac{11}{12}$$

You can't cross-multiply because this isn't a proportion so you must use one of the other methods.

$$\frac{6}{x} + \frac{7}{3} = \frac{9}{2x} - \frac{11}{12}$$

$$72 + 28x = 54 - 1/x$$

$$+1/x + 1/x$$

$$72 + 39x = 54$$

$$-72 - 72$$

$$39x = -18$$

$$39$$

$$X = -18$$

$$39 = -6$$

$$39 = -6$$

Hwk #10

Sec 9-6

Page 524

Also Due Monday

Problems 6, 9, 14, 15, 21

Show work to get credit

Solve 5. $\frac{5x}{4} - \frac{x-3}{3x} = \frac{8x}{6}$ $12x(\frac{5x}{4} - \frac{x-3}{3x}) = (\frac{8x}{6}) / 2x$ $15x^2 - 4(x-3) = 1/6x^2$ $15x^2 - 4x + 1/2 = 1/6$

LCM of the 3 Jenominators 15 12x