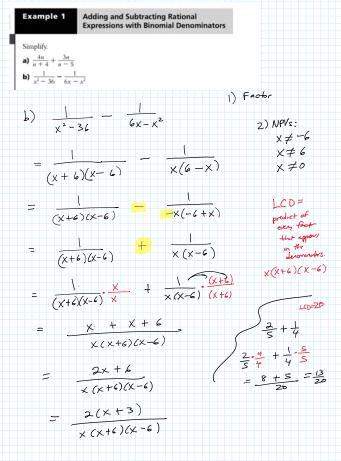
Sunday, March 26, 2023 4:10 PM

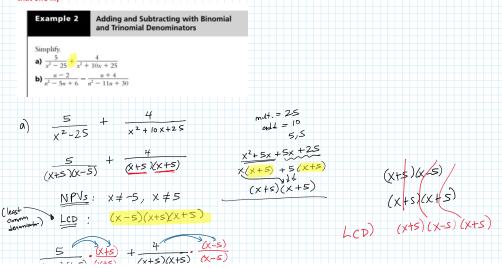
Tonight's Class:

- Questions from 6.2-6.3?
- Working through sections 6.4-6.5
 - o Adding/Subtraction Rational Expressions (continued)
 - Solving Rational Equations
- · Work on practice questions from worktext

Page 560 - part (b)



Page 561 - use for foldable on subtraction (and addition, if you didn't already fill that one in)



$$\frac{5}{(X+5)(X-5)} \frac{(X-5)(X+5)(X+5)}{(X+5)(X+5)} + \frac{1}{(X+5)(X+5)} \frac{(X-5)}{(X-5)}$$

$$\frac{5(X+5)}{(X+5)(X-5)} + \frac{1}{(X+5)(X+5)} \frac{(X-5)}{(X-5)}$$

$$\frac{5(X+5)}{(X+5)(X-5)(X+5)}$$

$$\frac{5(X+5)}{(X+5)(X-5)(X+5)}$$

$$\frac{9X+5}{(X+5)(X-5)(X+5)}$$

$$\frac{9X+5}{(X+5)(X-5)(X+5)}$$

b)
$$\frac{n-2}{n^2-5n+6}$$
 $\frac{n+4}{n^2-11n+30}$ $\frac{n+4}{2-5n+6}$ $\frac{n^2-11n+30}{2-5n+6}$ $\frac{n^2-2n-3n+6}{2-5n+6}$ $\frac{n^2-2n-3n+6}{2-5n-6}$ $\frac{n^2-2n-3n+6}{2-5n-6}$ $\frac{n^2-2n-3n+6}{2-5n-6}$ $\frac{n^2-2n-3n+6}{2-5n-6}$ $\frac{n^2-3n-6}{2-5n-6}$ $\frac{n+4}{2-5n-6}$ $\frac{n+4}{2-5n-6}$ $\frac{n+4}{2-5n-6}$ $\frac{n^2-5n-6n+30}{2-5n-6}$ $\frac{n+4}{2-5n-6}$ $\frac{n+30}{2-5n-6}$ $\frac{n-3}{2-5n-6}$ \frac

LCD) (xts)(x-s)(x+s)

$$= \frac{(n-5)(n-6)}{(n-3)(n-5)(n-6)}$$

$$= \frac{(n-5)(n-6)}{(n-3)(n-5)(n-6)}$$

$$= \frac{n^2 - 6n - 5n + 30}{(n-3)(n-5)(n-6)}$$

$$= \frac{(n-3)(n-5)(n-6)}{(n-3)(n-5)(n-6)}$$

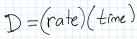
$$= \frac{(n-3)(n-5)(n-6)}{(n-3)(n-5)(n-6)}$$

$$= \frac{(n-3)(n-5)(n-6)}{(n-3)(n-5)(n-6)}$$

Example 3

Modelling a Situation with a Rational Expression

A plane travels from Toronto to Vancouver and back, a distance of about 3400 km each way. The plane flies 100 km/h faster on the return trip than it does on the journey out. Write, then simplify an expression for the total flying time in terms of the average speed from Toronto to Vancouver.



Tor > Vanc.

Vanc -> Tor (return)

| \mathcal{D} | Γ | <u> </u> |
|---------------|-------|----------|
| 3400 | r | 3400 |
| 3 100 | 1 | |
| 3400 | V+100 | 3400 |
| | | r+100 |
| | | |

Time =
$$\frac{3400 \cdot (r+100)}{r} + \frac{3400 \cdot r}{(r+100)} + \frac{3400}{r} \cdot r \neq 0$$

$$= \frac{3400 \cdot (r+100)}{r} + \frac{34000}{r} +$$

Try: page 565 #5a, 566 #7b, 569 #13b

6.5 Solving Rational Equations

×

Difference between Expression and Equation?

A value for MA X =

Variable and number being indaples/divided/ -- together but no "=" sign!

How to solve Rational Equations?

$$\begin{array}{c} X - 5 = 18 \\ + 5 \end{array}$$

$$\times = 23$$

$$\frac{1}{2}(2x) = \frac{1}{2}(10)$$

$$x = 5$$

$$\frac{1}{3x(x-8)}\left(\frac{1}{x}\right) + \frac{3x(x-8)\left(\frac{1}{x-8}\right)}{3x^{2}} = \frac{3x(x-8)\left(\frac{1}{x}\right)}{3x^{2}}$$

$$3(x-8)(1) + 3x(1) = x(x-8)(1)$$

$$3(x-8) + 3x = x(x-8)$$

$$3x-24 + 3x = x^2 - 8x$$

$$6x - 24 = x^2 - 8x$$

$$-6x$$

$$24 = x^2 - 14x$$

$$-24 = x^2 - 14x$$

$$24 = x - 11x + 24 + 24 + 22 - 2x - 12x + 24 = 0$$

$$0 = x^{2} - 14x + 24 + 24 + 22 - 12(x - 2) = 0$$

$$0 = (x - 2)(x - 12) + (x - 2)(x - 12) = 0$$

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$$0 = (x - 2)(x - 2)(x - 2)(x - 2)(x - 2) = 0$$

$$0 = (x - 2)(x - 2)(x - 2)(x - 2)(x - 2)(x - 2) = 0$$

$$0 = (x - 2)(x - 2)(x - 2)(x - 2)(x - 2)(x - 2) = 0$$

$$0 = (x - 2)(x - 2)(x - 2)$$

$$x^{2}-2x-\frac{12x+2y}{2} = 0$$

$$x(x-2)-12(x-2)=6$$

$$(x-2)(x-12)=0$$

Always check to see if your answ is an NPV. If it is, reject it. If all nows got rejected, we say No solohon.

(You can check, by substitutions into the ons, of equation)

WT page 578

$$2a)(x+1(x-2)) = \frac{3}{(x+4)(x-2)} \text{ NPVs}: x \neq -4 x \neq 2
5(x-2) = 3(x+4)
5x-10 = 3x+12
-3x+12$$

$$5(x-2) = 3(x+4)$$

$$5x - 10 = 3x + 12$$

$$-3x$$

$$2x - (0 = 12$$

$$+ 10$$

$$2x = 22$$

$$x = 11$$

WT page 579

Example 3

Solving Rational Equations with Binomial and Trinomial Denominators

Solve each equation.

a)
$$\frac{x}{x-3} = \frac{-6}{x^2 - 8x + 15}$$
 b) $\frac{x}{x+1} - \frac{x+3}{x+1}$

b)
$$\frac{x}{x+1} - \frac{x+1}{x-4} = \frac{5}{x^2 - 3x - 4}$$

b)
$$\frac{x}{x+1} - \frac{x+1}{x-4} = \frac{5}{x^2-3x-4}$$
 $\frac{x}{x+1} + \frac{3}{x^2-3x-4}$
 $\frac{x}{x+1} + \frac{3}{x+1} = \frac{5}{x^2-3x-4}$
 $\frac{x}{x+1} + \frac{3}{x+1} = \frac{5}{x^2-4x+1} = \frac{5}{x^2-4x+1} = \frac{5}{x^2-4x+1} = \frac{5}{x^2-4x+1} = \frac{5}{x^2-4x+1} = \frac{5}{x^2-4x-1} =$

$$LcD = x^{2}$$

$$2x^{2} - 4x = 6$$

$$not done yet!$$

$$2x^{2} - 4x - 6 = 0$$
Here to factor now:
$$2(x^{2} - 2x - 3) = 0$$

$$2(x + 1)(x - 3) = 0$$

$$\frac{\chi - 2}{\chi + 3} = \frac{\chi + 4}{\chi - 1}$$

$$(x+3)(x-1) \left(\frac{x-2}{x+3}\right) = (x+3)(x+3)\left(\frac{x+4}{x+3}\right)$$

$$(x-1)(x-2) = (x+3)(x+4)$$

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

For next class

- Complete worktext questions for 6.1-6.5
- Complete Trig Booster Exercise worksheet
 - No answers will be posted.
 - Clear, correct and complete work can earn you up to an 8% boost on your Chapter 5 Test mark. (You can't get a mark of over 100% on the test, though!)
- Oue next Thursday, April 13. I will not accept it after that date.
- Reminder no class Tuesday, April 11