

November 28, 2016

* Exam #3 - Friday

80% {

- Chp 5 - Polynomial Multiplication
- Chp 6 - Factoring, including Sum/Diff. of Cubes
- Chp 7 - Rational Functions

Nov 28-9:52 AM

Chapter 7

7.3 - Simplifying Rational Expressions

a Rational Function:

$$f(x) = \frac{p(x)}{q(x)}$$

where $p(x) \neq q(x)$ are Polynomials.
 x and $q(x) \neq 0!$

Nov 28-10:06 AM

Rational Expressions

$$\frac{x+2}{3x}, \frac{x+3}{x^2-x-6}, \frac{2x}{3y^2}$$

test: $\frac{3x}{3} = \frac{0}{3}$
 $x = 0$
 $x \neq 0$

$\{x \mid x \in \mathbb{R} \text{ \& } x \neq 0\}$
 $\{(-\infty, 0) \cup (0, \infty)\}$
 union

Domain: the set of all valid "inputs".

Nov 28-10:10 AM

7.3 - Simplifying Rational Expressions

• Multiplication

$$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$$

$$\frac{2}{x} \cdot \frac{x^2}{4} = \frac{\cancel{2}x^{\cancel{2}}}{\cancel{2}4x} = \frac{x}{2}$$

$$\frac{\cancel{2}}{\cancel{x}_1} \cdot \frac{x^{\cancel{1}}}{4_2} = \frac{1}{1} \cdot \frac{x}{2} = \frac{x}{2}$$

Nov 28-10:24 AM

$$\frac{\cancel{5}}{\cancel{t}_1} \cdot \frac{t^{\cancel{5}}}{\cancel{t}_2 b} = \frac{5}{1} \cdot \frac{t}{b}$$

$$= \frac{5t}{b}$$

Nov 28-10:28 AM

• Division

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$

$$\frac{b^5}{c^4} \div \frac{8b^2}{c^2}$$

$$\frac{b^{\cancel{5}3}}{c^{\cancel{4}2}} \cdot \frac{\cancel{c}^2}{\cancel{8}b^{\cancel{2}1}} = \frac{b^3}{8c^2}$$

Nov 28-10:30 AM

• Addition/Subtraction
w/ like denominators

$$\frac{a}{b} \pm \frac{c}{b} = \frac{a \pm c}{b}$$

$$\frac{5}{9c} - \frac{17}{9c} = \frac{5-17}{9c}$$

$$= \frac{-12}{9c}$$

$$= -\frac{4 \cdot 3}{3 \cdot 3c} \text{ not R.P.}$$

$$= -\frac{4}{3c}$$

Nov 28-10:34 AM

• Addition/Subtraction
w/ Unlike denominators

$$\frac{a}{b} \pm \frac{c}{d} = \frac{ad \pm bc}{bd}$$

LCM

$$\frac{19}{36x^3} + \frac{5}{48y^3} = \frac{19 \cdot 4 \cdot y^3 + 5 \cdot 3 \cdot x^3}{144x^3y^3}$$

LCM: ? $1728x^3y^3$ or $144x^3y^3$

$\frac{76y^3 + 15x^3}{144x^3y^3}$

Nov 28-10:37 AM

$36 = 2^2 \cdot 3^2$
 $48 = 2^4 \cdot 3$

$36 = 2^2 \cdot 3^2$
 $48 = 2^4 \cdot 3$

$$2^4 \cdot 3^2 = 16 \cdot 9 = 144$$

Nov 28-10:40 AM

2 7.3

Nov 28-10:48 AM