

April 20, 2016

* Exam #3 - Tuesday

- Factoring: 6.1 - 6.6
- Rational Expressions: 7.1 & 7.3

Apr 20-9:53 AM

7.1 #48)

$$\frac{-4u^{-4}w^4}{8u^{-8}w^{-7}} = \frac{-4u^{\cancel{8}}w^4w^7}{\cancel{8}u^4} = \frac{-1u^4w^{11}}{2}$$

$$\frac{u^{-4}}{u^{-8}} = u^{-4 - (-8)} = u^{-4 + 8} = u^4$$

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$$\frac{x^{-6}}{x^{-2}} = \frac{x^{\cancel{6}}}{x^{\cancel{2}}} = \frac{1}{x^4}$$

$$x^{-6 - (-2)} = -6 + 2 = -4$$

$$x^{-4} = \frac{1}{x^4}$$

Apr 20-10:03 AM

#27)

$$(6^{-6})^7 = 6^{-6 \cdot 7} = 6^{-42} = \frac{1}{6^{42}}$$

$$(2^{-3})^2 = (2^{-3}) \cdot (2^{-3}) = 2^{-6} = \frac{1}{2^6} = \frac{1}{64}$$

$$= \frac{1}{2^3} \cdot \frac{1}{2^3}$$

$$= \frac{1}{2 \cdot 2 \cdot 2} \cdot \frac{1}{2 \cdot 2 \cdot 2}$$

$$= \frac{1}{8} \cdot \frac{1}{8}$$

$$= \frac{1}{64}$$

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7.3 #18)

$$\frac{9}{10b} - \frac{7}{2b}$$

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7.3 Addition/subtraction with Like Denominators

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

$$\frac{5m}{2n} + \frac{m}{2n}$$

$$\frac{5m + m}{2n} = \frac{6m}{2n}$$

$$= \frac{3m}{n}$$

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$$\frac{2y}{2y-7} - \frac{7}{2y-7}$$

$$\frac{2y-7}{2y-7} = 1$$

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$$\frac{2x^2 + 5x}{x+2} - \frac{4x+6}{x+2}$$

$$\frac{2x^2 + 5x - (4x+6)}{x+2}$$

$$\frac{2x^2 + 5x - 4x - 6}{x+2}$$

$$\frac{2x^2 + x - 6}{x+2}$$

$ac = -12$ $r = 1$

+	-
4	3

$2x^2 + 4x - 3x - 6$
 $2x(x+2) - 3(x+2)$
 $(x+2)(2x-3)$

~~$(x+2)(2x-3)$~~
 $(x+2)$
 $2x-3$

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Steps
 ① Factor first

$$\frac{3x^2 + 2x}{x-1} - \frac{10x-5}{x-1}$$

$$\frac{x(3x+2)}{x-1} - \frac{5(2x-1)}{x-1}$$

$$\frac{x(3x+2) - 5(2x-1)}{x-1}$$

$$\frac{3x^2 + 2x - 10x + 5}{x-1}$$

$$\frac{3x^2 - 8x + 5}{x-1}$$

$ac = 15$ $r = -8$

-	+
5	3

$3x^2 - 5x - 3x + 5$
 $x(3x-5) - 1(3x-5)$
 $(3x-5)(x-1)$

~~$(3x-5)(x-1)$~~
 $(x-1)$
 $3x-5$

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Addition/Subtraction
 with Unlike Denominators

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

$b \cdot d = 250x^3$

$\frac{a}{b} = \frac{3}{10x^2}$ $\frac{c}{d} = \frac{7}{25x}$

Least Common Denominator (LCD)
 $50x^2$

① $\frac{3}{10x^2} \cdot \frac{5}{5} = \frac{15}{50x^2}$

② $\frac{7}{25x} \cdot \frac{2x}{2x} = \frac{14x}{50x^2}$

Common Denominators

$\frac{15 + 14x}{50x^2}$ ← A.P. ? yes!

Apr 20-10:27 AM

① $\frac{19}{2x}, \frac{5}{4x^3}$
 LCD: $4x^3$

② $\frac{17x}{4y^5}, \frac{2}{8y}$
 LCD: $8y^5$

③ $\frac{2}{x+3}, \frac{5}{x+2}$
 LCD: $(x+3)(x+2)$

④ $\frac{1}{6y}, \frac{3x}{4y+12}$
 LCD: $6 \cdot y \cdot 4 \cdot (y+3)$
 $24y(y+3)$

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Steps
 ① Factor
 ② Find LCD
 ③ Simplify

$$\frac{6x}{x^2-4} - \frac{3}{x+2}$$

$$\frac{6x}{(x+2)(x-2)} - \frac{3}{x+2}$$

LCD: $(x+2)(x-2)$

$$\frac{6x - 3(x-2)}{(x+2)(x-2)}$$

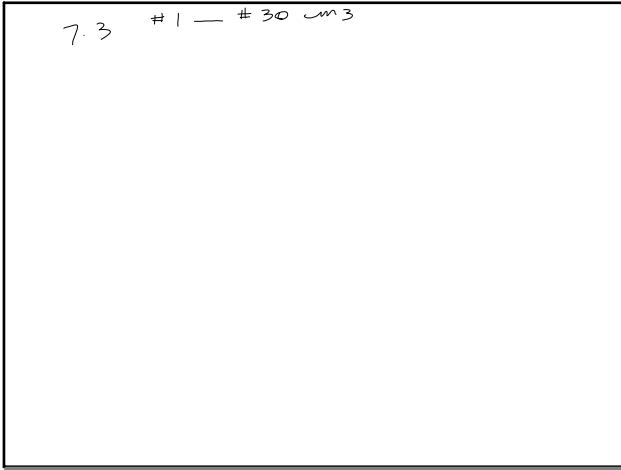
$$\frac{6x - 3x + 6}{(x+2)(x-2)}$$

$$\frac{3x + 6}{(x+2)(x-2)}$$

← A.P. ?

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

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