

# Calc 4 Life

## Section R.3

May 13-10:02 PM

### Properties of Rational Expressions

$$\frac{p}{q} = \frac{pk}{qk}$$

$$\frac{p}{q} \pm \frac{r}{q} = \frac{p \pm r}{q}$$

$$\begin{aligned} \frac{x}{4} - \frac{(2x+1)}{4} &= \frac{x - (2x+1)}{4} \\ &= \frac{-x-1}{4} \end{aligned}$$

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$$\frac{p}{q} \cdot \frac{r}{s} = \frac{pr}{qs}$$

$$\frac{p}{q} \div \frac{r}{s} = \frac{p}{q} \cdot \frac{s}{r} = \frac{ps}{qr}$$

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Reduce the rational expression

$$\frac{8x + 16}{4} = \frac{2 \cancel{4} (x+2)}{\cancel{4}} = 2(x+2)$$

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Reduce the rational expression

$$\frac{k^2 + 6k - 16}{k^2 + 9k + 8}$$

$$\frac{\cancel{(k+8)}(k-2)}{\cancel{(k+8)}(k+1)} = \frac{k-2}{k+1}$$

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Multiply the rational expressions

$$\frac{3y+9}{6} \cdot \frac{18}{5y+15}$$

$$\frac{\cancel{3}(y+3)}{\cancel{1}\cancel{6}} \cdot \frac{\cancel{18}^3}{\cancel{5}(y+3)}$$

$$\frac{9}{5}$$

$$\frac{m^2 + 5m + 6}{m+3} \cdot \frac{m}{m^2 + 3m + 2}$$

$$\frac{\cancel{(m+3)}\cancel{(m+2)}}{\cancel{m+3}} \cdot \frac{m}{\cancel{(m+2)}(m+1)}$$

$$\frac{m}{m+1}$$

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Divide the rational expressions

$$\frac{9p - 36}{12} \div \frac{5(p - 4)}{18}$$

$$\frac{\cancel{9}(p-4)}{\cancel{4} \cdot \cancel{3} \cdot \cancel{2}} \cdot \frac{\cancel{6}}{\cancel{3} \cdot \cancel{2} \cdot 3} \cdot \frac{5(p-4)}{\cancel{5} \cdot \cancel{4}}$$

$$\frac{54}{20} = \frac{27}{10}$$

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Subtract the rational expressions

$$\frac{4}{5k} - \frac{11}{5k} = \frac{-7}{5k}$$

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Combine the rational expressions into a single term

$$\frac{6 \cdot 7}{6 \cdot p} - \frac{9 \cdot 3}{2p \cdot 3} + \frac{1 \cdot 2}{3p \cdot 2}$$

$$\frac{42}{6p} - \frac{27}{6p} + \frac{2}{6p}$$

$$\frac{17}{6p}$$

$$\frac{x+3}{x^2+5x+4} - \frac{5x-1}{x^2+x-12}$$

$$\frac{(x-3)(x+3)}{(x-3)(x+4)(x+1)} - \frac{(5x-1)(x+1)}{(x+4)(x-3)(x+1)}$$

$$\frac{x^2-9 - (5x^2 - \cancel{4x} + 5x - 1)}{(x-3)(x+4)(x+1)}$$

$$\frac{-4x^2 + 4x - 8}{(x-3)(x+4)(x+1)}$$

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## Homework:

page R-10 & R-11; #1-33 odd

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