

Rational Expressions Partner Activity

Directions: You and your partner will work together to complete these rational expression problems. Partner A will complete the problems on the left and Partner B will complete the problems on the right. When you are done, your answers should match. If not, work together to find and correct your mistake.

For #1-3, simplify the rational expression. Don't forget to list any domain restrictions.

<p>1. $\frac{x-5}{7x-35} = \frac{\cancel{x-5}}{7\cancel{(x-5)}} = \frac{1}{7}$</p>	<p>1. $\frac{x+3}{7x+21} = \frac{\cancel{x+3}}{7\cancel{(x+3)}} = \frac{1}{7}$</p>
<p>2. $\frac{x^2-2x-15}{x-5} = \frac{\cancel{(x-5)}(x+3)}{\cancel{x-5}}$</p>	<p>2. $\frac{x^2+x-6}{x-2} = \frac{\cancel{(x-2)}(x+3)}{\cancel{x-2}}$</p>
<p>3. $\frac{x^2-x-12}{x^2-9x+20} = \frac{\cancel{(x-4)}(x+3)}{\cancel{(x-4)}(x-5)}$</p>	<p>3. $\frac{x^2-4x-21}{x^2-12x+35} = \frac{\cancel{(x-7)}(x+3)}{\cancel{(x-7)}(x-5)}$</p>

For #4-8, multiply or divide the rational expressions and simplify.

<p>4. $\frac{6x+9}{3x-15} \cdot \frac{x-5}{4x+6} = \frac{\cancel{3}(\cancel{2x+3})}{\cancel{3}(\cancel{x-5})} \cdot \frac{\cancel{x-5}}{2(\cancel{2x+3})}$ $= \frac{1}{2}$</p>	<p>4. $\frac{x+5}{2x-2} \cdot \frac{x^2+4x-5}{x^2+10x+25} = \frac{\cancel{x+5}}{2\cancel{(x-1)}} \cdot \frac{\cancel{(x+5)}(x-1)}{\cancel{(x+5)}(x+5)}$ $= \frac{1}{2}$</p>
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$$5. \frac{x^2+2x-8}{7} \cdot \frac{7x+21}{x^2+7x+12} = \frac{\cancel{(x+4)}(x-2) \cancel{7}(x+3)}{7 \cdot \cancel{(x+3)}\cancel{(x+4)}}$$

$$x-2$$

$$5. \frac{5x+50}{x+10} \cdot \frac{x-2}{5} = \frac{\cancel{5}(x+10)}{x+10} \cdot \frac{x-2}{\cancel{5}}$$

$$= x-2$$

$$6. \frac{x^2+8x+12}{3x+9} \cdot \frac{x+3}{x^2+2x-24}$$

$$\frac{\cancel{(x+6)}(x+2)}{3\cancel{(x+3)}} \cdot \frac{\cancel{x+3}}{\cancel{(x+6)}(x-4)}$$

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

$$6. \frac{x^2+6x+8}{9x+45} \cdot \frac{3x+15}{x^2-16}$$

$$\frac{\cancel{(x+4)}(x+2)}{3\cancel{3}(x+5)} \cdot \frac{\cancel{3}(x+5)}{\cancel{(x+4)}(x-4)}$$

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

$$7. \frac{x^2+10x+16}{x^2+6x+8} \div \frac{1}{x+4}$$

$$\frac{\cancel{(x+8)}(x+2)}{\cancel{(x+4)}(x+2)} \cdot \frac{\cancel{x+4}}{1}$$

$$x+8$$

$$7. \frac{x^2+11x+24}{x^2+5x+6} \div \frac{1}{x+2}$$

$$\frac{\cancel{(x+8)}(x+3)}{\cancel{(x+3)}(x+2)} \cdot \frac{\cancel{x+2}}{\cancel{1}}$$

$$x+8$$

$$8. \frac{x^2-9}{x^2+7x+12} \div \frac{x^2-5x+6}{x^2-8x+12}$$

$$\frac{\cancel{(x+3)}(x-3)}{\cancel{(x+3)}(x+4)} \cdot \frac{(x-6)\cancel{(x-2)}}{\cancel{(x-3)}\cancel{(x+2)}}$$

$$\frac{x-6}{x+4}$$

$$8. \frac{x^2-5x-6}{x^2+6x+5} \div \frac{x^2-x-20}{x^2-25}$$

$$\frac{\cancel{(x-6)}(x+1)}{\cancel{(x+5)}(x+1)} \cdot \frac{\cancel{(x+5)}(x-5)}{\cancel{(x-5)}(x+4)}$$

$$\frac{x-6}{x+4}$$