Rational Expressions Partner Activity

Directions: You and your partner will work together to complete these radical 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 radical expression. Don't forget to list any domain restrictions.

1. $\frac{x-5}{7x-35} = \frac{x-5}{7(x-5)} = \frac{1}{7}$ $x \neq 5$	1. $\frac{x+3}{7x+21} = \frac{x+3}{7(x+3)} = \frac{1}{7}$ $x \neq -3$
2. $\frac{x^2-2x-15}{x-5} = \frac{(x-5)(x+3)}{x-5}$ $x \neq 5$	2. $\frac{x^2+x-6}{x-2} = \frac{(x-2)(x+3)}{x-2}$ $x \neq 2$
3. $\frac{x^2-x-12}{x^2-9x+20} = \frac{(x-4)(x+3)}{(x-4)(x-5)}$ $x \neq 4, x \neq 5$	3. $\frac{x^2-4x-21}{x^2-12x+35} = \frac{(x-7)(x+3)}{(x-7)(x-5)}$ $x \neq 7, x \neq 5$

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

4. $\frac{6x+9}{3x-15} \cdot \frac{x-5}{4x+6} = \frac{3(2x+3)(x-5)}{3(x-5)\cdot 2(2x+3)}$ $= \frac{1}{2}$ $x \neq 5, x \neq -3/2$	4. $\frac{x+5}{2x-2} \cdot \frac{x^2+4x-5}{x^2+10x+25} = \frac{x+5}{2(x-1)} \cdot \frac{(x-1)(x+5)}{(x+5)(x+5)}$ $\frac{1}{2}$ $x \neq 1, -5 \neq x$

5. $\frac{x^2+2x-8}{7} \cdot \frac{7x+21}{x^2+7x+12}$

$\frac{(x+4)(x-2)\cdot 7(x+3)}{7(x+3)(x+4)} = x-2$

$x \neq -3,\ x \neq -4$

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

$x \neq -10$

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

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

$\frac{x+2}{3(x-4)}$ $\quad x \neq -3, x \neq -6, x \neq 4$

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

$\frac{(x+2)(x+4)\cdot 3(x+5)}{9(x+5)(x+4)(x-4)} = \frac{3(x+2)}{9(x-4)}$

$= \frac{x+2}{3(x-4)}$ $\quad x \neq -5, -4, 4$

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

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

$x \neq -2, x \neq -4$

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

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

$x \neq -2, x \neq -3$

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

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

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

$x \neq -4, -3, 3, 2$

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

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

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

$x \neq -5, -1, 5, -4$