

## Section 3.1 and 3.2 – Final Exam Prep

Answer the following three questions, show as many steps as you need to, write clearly and neatly.

1. Simplify the Rational Expression, State the Domain Restrictions

$$\frac{3x^2 - 13x - 30}{15x^2 + 28x + 5}$$

$$\frac{3x^2 - 10x + 5x - 30}{15x^2 + 3x + 25x + 5}$$

$$\frac{3x(x-6) + 5(x-6)}{3(5x+1) + 5(5x+1)}$$

$$\frac{(3x+5)(x-6)}{(3x+5)(5x+1)}$$

$$\frac{(3x+5)(x-6)}{(3x+5)(5x+1)}$$

$$\frac{x-6}{5x+1}$$

$$x \neq \frac{-5}{3}$$

$$x \neq \frac{-1}{5}$$

$$\begin{array}{r} 90 \\ 2 \ 45 \\ 3 \ 30 \\ 5 \ 18 \\ \hline 75 \\ 25 \ 3 \end{array}$$

2. Multiply the Rational Expressions, simplify if possible, state the Domain Restrictions

$$\frac{x^2 + 7x + 12}{x^2 + 2x - 8} \cdot \frac{x^2 - 3x + 2}{x^2 + 2x - 3}$$

$$x \neq 1, 2, -3, -4$$

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

$$1$$

3. Divide the Rational Expressions, simplify if possible, state the Domain Restrictions

$$\frac{24}{38}$$

$$\frac{2x^2 - 5x - 12}{3x^2 - 11x - 4} \div \frac{2x^2 - 7x - 15}{3x^2 - 14x - 5}$$

f2

36

15

$$\frac{2x^2 - 8x + 3x - 12}{3x^2 - 12x + 1x - 4} \div \frac{2x^2 - 10x + 3x - 15}{3x^2 - 15x + 1x - 5}$$

$$\frac{2x(x-4) + 3(x-4)}{3x(x-4) + 1(x-4)} \div \frac{2x(x-5) + 3(x-5)}{3x(x-5) + 1(x-5)}$$

$$\frac{(2x+3)(x-4)}{(3x+1)(x-4)} \cdot \frac{(3x+1)(x-5)}{(2x+3)(x-5)}$$

$$x \neq 5, 4, \frac{-3}{2}, \frac{-1}{3}$$

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