Honors Pre-Calculus Name_____

Multiplying and Dividing Rational Expressions

Simplify each expression.

1) $\frac{n^2 - 11n + 24}{n^2 + 2n - 48} \cdot \frac{n^2 + 14n + 48}{n + 6}$

2) $\frac{4x + 8}{x^2 + 4x + 4} \cdot \frac{7x^2 + 14x}{4x + 36}$

3) $\frac{9x^2 + 12x + 3}{30x^2 + 30x} \cdot \frac{20x - 12}{15x^2 - 4x - 3}$

4) $\frac{25x^2 - 30x}{2x^2 + 28x + 90} \cdot \frac{2x^2 + 24x + 70}{5x - 6}$

5) $\frac{3p + 7}{9p^2 + 27p + 14} \div \frac{1}{3p^2 + 32p + 20}$

6) $\frac{1}{n - 10} \div \frac{2n + 8}{2n^2 + 4n - 16}$

7) $\frac{5}{\frac{4}{x} - \frac{x}{5}}$

8) $\frac{a - 4}{\frac{4}{9} + \frac{1}{3}}$

9) $\frac{\frac{9}{x^2}}{\frac{x}{16} + \frac{3}{4}}$

10) $\frac{\frac{x - 1}{x + 3} - \frac{1}{x}}{x - 1}$

Honors Pre-Calculus Name_____

Multiplying and Dividing Rational Expressions

Simplify each expression.

1) $\frac{n^2 - 11n + 24}{n^2 + 2n - 48} \cdot \frac{n^2 + 14n + 48}{n + 6}$

$\frac{(n - 8)(n - 3)}{n - 6}$

2) $\frac{4x + 8}{x^2 + 4x + 4} \cdot \frac{7x^2 + 14x}{4x + 36}$

$\frac{7x}{x + 9}$

3) $\frac{9x^2 + 12x + 3}{30x^2 + 30x} \cdot \frac{20x - 12}{15x^2 - 4x - 3}$

$\frac{2}{5x}$

4) $\frac{25x^2 - 30x}{2x^2 + 28x + 90} \cdot \frac{2x^2 + 24x + 70}{5x - 6}$

$\frac{5x(x + 7)}{x + 9}$

5) $\frac{3p + 7}{9p^2 + 27p + 14} \div \frac{1}{3p^2 + 32p + 20}$

$p + 10$

6) $\frac{1}{n - 10} \div \frac{2n + 8}{2n^2 + 4n - 16}$

$\frac{n - 2}{n - 10}$

7) $\frac{5}{\frac{4}{x} - \frac{x}{5}}$

$\frac{25x}{20 - x^2}$

8) $\frac{a - 4}{\frac{4}{9} + \frac{1}{3}}$

$\frac{9a - 36}{7}$

9) $\frac{\frac{9}{x^2}}{\frac{x}{16} + \frac{3}{4}}$

$\frac{144}{x^3 + 12x^2}$

10) $\frac{\frac{x - 1}{x + 3} - \frac{1}{x}}{x - 1}$

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