

SM3 HW #3-3 (Mult./Divide Rational Expressions)

Period _____

Factor, then simplify.

1) $\frac{a^2 - 5a - 24}{8 - a} \cdot \frac{6}{8a^2 + 24a}$

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

3) $\frac{5}{5(n - 7)} \div \frac{6}{6(n - 3)}$

4) $\frac{4x(5x + 8)}{2x^2} \div \frac{8(5x + 8)}{2x^2}$

5) $\frac{4}{2m^2} \div \frac{9m^2 + 9m}{6m^3 + 6m^2}$

6) $\frac{1}{r - 5} \div \frac{r - 4}{r^2 - 6r + 5}$

7) $\frac{2n - 4}{n - 2} \cdot \frac{n + 3}{4n}$

8) $\frac{6m + 4}{2} \cdot \frac{4m^2}{12m + 8}$

9) $\frac{p - 3}{p^2 + 10p + 25} \div \frac{2}{p + 5}$

10) $\frac{2x}{6x} - \frac{4}{5x - 5}$

11) $\frac{5n}{n - 1} - \frac{4n}{n + 2}$

12) $\frac{48 - 12n}{6n^2 - 24n} \cdot \frac{9n - 9}{n - 1}$

13) Divide using any of the 3 methods we learned in Unit 2

$$\frac{-9x^3 - 90x^2 - 91x - 90}{x + 9}$$

a) Simplify the following expressions

b) state what the "excluded values" are for each

14) $\frac{35}{25x + 40}$

15) This is a "nice" 3rd degree polynomial (common factor)

(a) write the intercept form equation

(b) find the x-intercepts.

$$y = 6x^3 - 18x^2 + 12x$$

16) This is a "nice" 3rd degree polynomial (pattern)

a) Factor the polynomial.

b) What are the zeroes?

$$f(x) = 5x^3 - x^2 - 5x + 1$$

17) Use $m = x^2$ and $m^2 = x^4$ substitution to:

a) Factor the polynomial

b) find the zeroes

$$f(x) = x^4 + 12x^2 + 35$$