

Math 3  
Unit 5 Quiz Review

Name: Key  
Date: \_\_\_\_\_

Simplify each rational expression. State any restrictions on the variables. Pay close attention to the sign between the rational expressions!

1.  $\frac{3x-6}{5x-20} \cdot \frac{x-8}{5x-10}$

$\frac{3(x-8)}{25(x-4)}$

2.  $\frac{y^2-25}{y^2-16} \div \frac{2y+10}{y^2-4y}$

$\frac{y(y-5)}{2(y+4)}$

3.  $\frac{14x+7}{4x-6} \cdot \frac{8x-12}{42x+21}$

$\frac{2}{3}$

4.  $\frac{8}{3x^3y} + \frac{4}{9xy^3}$

$\frac{24y^2 + 4x^2}{9x^3y^3}$

Bonus Points  
 $\frac{4(6y^2 + x^2)}{9x^3y^3}$

5.  $3x - \frac{x^2-5x}{x^2-2}$

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

Bonus Points  
 $\frac{x(3x^2 - x - 1)}{x^2 - 2}$

6.  $\frac{5x}{2y+4} - \frac{6}{y^2+2y}$

$\frac{5xy - 12}{2y(y+2)}$

7.  $\frac{7}{5y+25} - \frac{4}{3y+15}$

$\frac{1}{15(y+5)}$

8.  $\frac{x^2}{x^2+2x+1} \div \frac{3x}{x^2-1}$

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

9.  $\frac{2x+4}{3x-3} \cdot \frac{12x-12}{x+5}$

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

10.  $\frac{7}{2xy^2} + \frac{3}{8x^2y}$

$\frac{28x + 3y}{8x^2y^2}$

Divide Using Synthetic division.

11.  $(x^4 - 2x^3 + x - 9) \div (x - 9)$

$$x^3 + 7x^2 + 63x + 568 + \frac{5103}{x-9}$$

12.  $(2x^4 + 6x^3 - 5x^2 - 60) \div (x + 1)$

$$2x^3 + 4x^2 - 9x + 9 - \frac{69}{x+1}$$