

Algebra 2  
Unit 4 Test 1 Review

Simplifying Rational Expressions

1.  $\frac{x^2 + 6x}{x^2 + 10x + 24}$

2.  $\frac{3x^2 - 13x + 4}{x^2 - 16}$

3.  $\frac{x^2 - 3x - 10}{x^2 + 9x + 14}$

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

Multiplying and Dividing Rational Expressions

5.  $\frac{x^2 + 7x - 18}{x^2 - 2x - 48} \cdot \frac{x^2 + 5x - 6}{x^2 - 4x}$

6.  $\frac{x^2 + 15x + 56}{x^2 - 9x + 18} \div \frac{x^2 + 9x + 8}{x^2 - 7x + 6}$

7.  $\frac{x^2 + 14x + 45}{x^2 + 7x + 12} \div \frac{x^2 + 18x + 81}{3x^2 + 8x - 16}$

8.  $\frac{x^2 - 81}{x^2 - 8x - 9} \cdot \frac{3x + 3}{x^2 + 5x - 36}$

## Adding and Subtracting Rational Expressions

$$9. \frac{x-7}{x+8} + \frac{3x+5}{x+8}$$

$$10. \frac{2x+11}{3x} + \frac{x-4}{x}$$

$$11. \frac{x^2-3x}{x^2-4} - \frac{x-8}{x-2}$$

$$12. \frac{3x^2-7}{x^2+9x+14} - \frac{2x^2+3x+3}{x^2+9x+14}$$

## Solving Rational Equations (Solve for the variable.) Be sure to check for extraneous solutions.

$$13. \frac{3}{x} - \frac{7}{x^2} = \frac{5}{x}$$

$$14. \frac{1}{x+2} = \frac{-4}{3x-4}$$

$$15. \frac{3x+5}{x-1} - \frac{7}{x-1} = \frac{5x+2}{x-1}$$

$$16. \frac{x}{x^2-3x-4} + \frac{2}{x+1} = \frac{2x}{x^2-3x-4}$$