

**Rational Functions (Chapter 8) Review***Advanced Algebra with Trigonometry, Glawe*

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Perform the indicated operation and simplify.

1)  $\frac{3x^3y}{4x^5y^2} \cdot \frac{6y^6}{2xy^3}$

2)  $\frac{x^2+2x-24}{2x+12} \cdot \frac{x^2+6x+8}{x^2-16}$

3)  $\frac{x^2-3x-10}{3x+9} \div \frac{x^2+5x+6}{2x^2-x-6}$

4)  $\frac{7}{5x} - \frac{4}{3x}$

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

6)  $\frac{5x}{x^2+x-12} - \frac{4}{x+4}$

7) Simplify  $\frac{\frac{3}{x} + \frac{x+1}{x-4}}{\frac{2x-4}{x-4}}$

8) Simplify  $\frac{\frac{1}{2} + \frac{2}{x-6}}{\frac{3x-6}{x^2-12x+36}}$

Solve the equation. Check for extraneous solutions.

$$9) \frac{9}{x^2-6x+9} = \frac{3x}{x^2-3x}$$

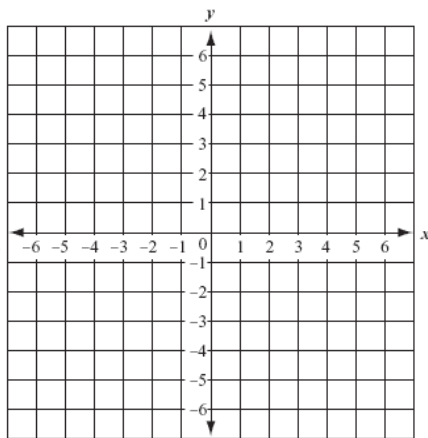
$$10) \frac{2}{x-3} + \frac{1}{x} = \frac{x-1}{x-3}$$

Sketch the asymptotes and graph the rational function. Identify the vertical asymptote and horizontal asymptote, and state the domain/range. Plot a *minimum* of two points on each branch.

$$11) y = \frac{-3}{x+2} - 1$$

V.A. \_\_\_\_\_

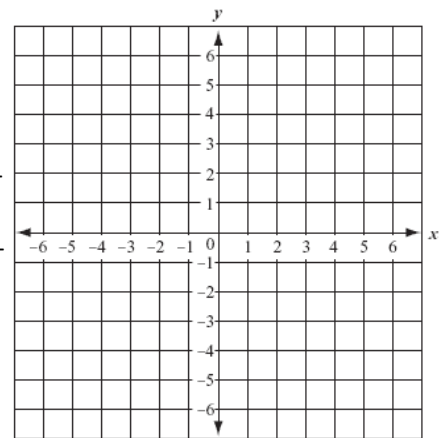
H.A. \_\_\_\_\_



$$12) y = \frac{2x+1}{4x-8}$$

V.A. \_\_\_\_\_

H.A. \_\_\_\_\_



Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

13) How does the graph of  $y = \frac{3}{x+5} + 2$  compare to the graph of  $y = \frac{3}{x}$  ?

14) How does the graph of  $y = \frac{1}{x-2} - 4$  compare to the graph of  $y = \frac{1}{x}$  ?

Find the least common multiple of the polynomials.

$$15) 3x^2 \text{ and } 3x - 12$$

$$16) x^2 - 36 \text{ and } 2x + 12$$