Pre-Calculus **Name** _____

Introduction to Rational Functions Homework **Hour** _____

1. Which of the following must be true for x in the equation? $\frac{1}{x}+\frac{1}{x+3}=2$

   A. $x=0,\ x=-3$ B. $x\neq 0,\ x=-3$

   C. $x=0,\ x\neq -3$ D. $x\neq 0,\ x\neq -3$

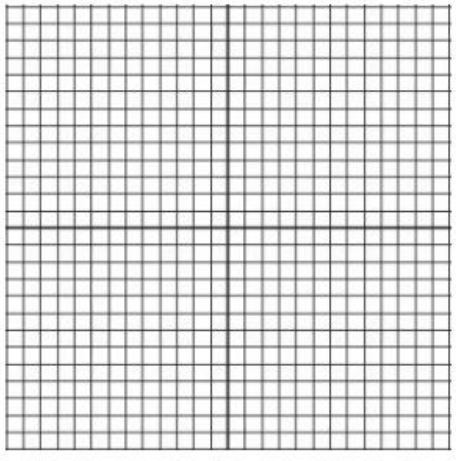
2. Solve for y. $\frac{5}{3y}-\frac{6}{4y}=\frac{1}{6}$

3. Simplify.

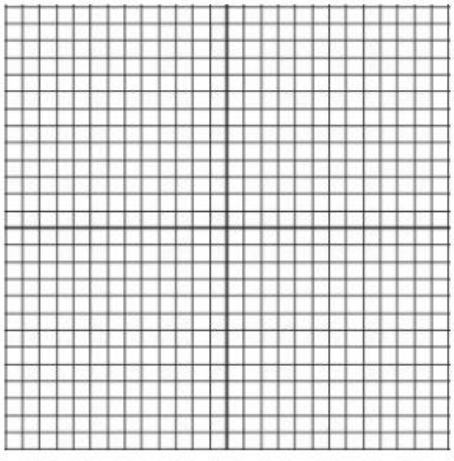
a. $\frac{(x+2)^3}{(x+2)}$ b. $\frac{x^2-5x+6}{(x-2)^2}$ c. $\frac{2x^2-2y^2}{x+y}$

4. Sketch the graphs below. Use a table of values to help you.

$y=\frac{1}{x}$



$y=\frac{2}{x}$



5. What is the domain and range of the function $f(x)=\frac{2}{x}$?

6. Simplify

$$\frac{2x^2 + 11x + 5}{3x^2 + 17x + 10}$$

$$\frac{7x - 28}{x^2 - 16}$$

$$\frac{1-x}{x^2-1}$$

7. Simplify.

$$\frac{\frac{1}{x+5}}{\frac{x}{2}}$$

8. Do you remember how to multiply and divide fractions? Try these.

$$\frac{x+2}{x-4} \div \frac{1}{3x-12}$$

$$\frac{x^2-2x-8}{9x^2-16} \cdot \frac{3x^2+10x+8}{x^2-16}$$