

RATIONALS TEST REVIEW

Name: _____

This, in addition to your test review from the blue book, is designed to prepare you for the assessment you will take next class.

➤ Goal 1: Operations with Rational Functions

Simplify the following:

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

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

3. $\frac{3x}{x^2-9} + \frac{4}{2x-6} + \frac{5}{x+3}$

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

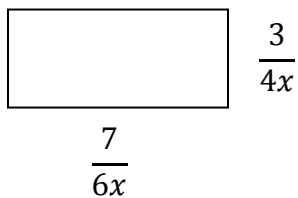
5. $\frac{\frac{y^2-5y+4}{y^2-1}}{\frac{y^2-9}{y^2+5y+4}}$

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

7. Find the perimeter and area of

Area:

Perimeter:



➤ **Goal 2: Asymptotes and Points of Discontinuity**

8. Write a function that has the following characteristics: Hole at $x=4$ and a vertical asymptote at $x=-3$

9) Determine the location of any points of discontinuity and describe them as either holes or asymptotes:

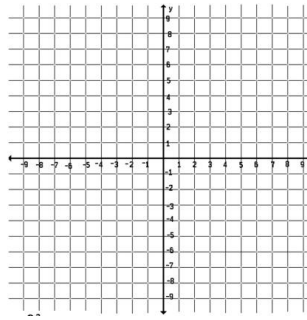
a) $y = \frac{x-5}{x^2-x-20}$

b) $y = \frac{x^2-x-6}{x^2-3x}$?

10) What is the domain of the function in a)? _____

11. Graph the following function and find all of the requested information.

$$f(x) = \frac{2x^2 + 3x - 2}{x^2 + 3x + 2}$$



x	y

Hole(s): _____ Vertical Asymptote(s): _____

Domain: _____

Horizontal Asymptote(s): _____

x-intercept(s): _____ y-intercept: _____

➤ **Goal 3: Solving Rational Equations**

12. Solve for x & check for extraneous solutions: $\frac{10}{4x-6} = \frac{6}{2x+10}$

13. Solve and check for extraneous solutions: $\frac{7}{x^2+3x-10} - \frac{3}{x+5} = \frac{4}{x-2}$

14. Solve for x and check for extraneous solutions: $x + \frac{5}{x} = 18$