Precalculus Honors

Rational Functions and Inequalities

LEARNING PLAN

(Chapter 4)

Name: _____

Date: _____

Period:____

G___

Skill/Understanding:	Review/Practice Problems
Transformation of $y = \frac{1}{x}$ ❑ I can rewrite rational functions as a transformation of $y = \frac{1}{x}$ using the giant one method. ❑ I can rewrite rational functions as a transformation of ❑ $y = \frac{1}{x}$ using polynomial division. ❑ I can identify horizontal and vertical asymptotes for transformation of $y = \frac{1}{x}$. ❑ I can identify all intercepts for transformation of $y = \frac{1}{x}$. ❑ I can make an accurate sketch for transformation of $y = \frac{1}{x}$.	4-77, 4-110, 4-124 (a) and (c), and CL 4-132.
Interpreting Rational Function Equations ❑ I can identify all of the asymptotes for a given rational function (horizontal, vertical, slant) ❑ I can identify any holes (point discontinuities) for a given rational functions. ❑ I can identify all intercepts for a given rational function. ❑ I can state the end behavior of a rational function. ❑ I can make an accurate sketch of a rational function given the equation.	4-56, 4-82, 4-100, and CL 4-132 4-6, 4-44, 4-75, 4-110, 4-120, and CL 4-135.
Reciprocal Functions ❑ When given the graph of a function, I can make a sketch of its reciprocal function. ❑ I understand the relationship between x-intercepts and vertical asymptotes for a function and its reciprocal. ❑ I understand how the y-intercepts are related between a function and its reciprocal. ❑ I understand how minima and maxima are related between a function and its reciprocal.	4-114 5-7, 5-68, 5-74 (c), 5-101, and CL 5-135.
Polynomial and Rational Inequalities ❑ I can set a polynomial or rational inequality equal to zero. ❑ I can factor a polynomial or rational inequality to find boundary points. ❑ I can test values between my boundary points to see which regions are positive and which are negative. ❑ I can use a sign chart to find the solution to a polynomial or rational inequality ❑ I can represent my solution using interval notation. ❑ I can represent my solution using inequality notation.	4-109 and 4-119. 5-24, 5-76, 5-125, and CL 5-136.

PRACTICE PROBLEMS:

1) Given the rational function: $f(x) = \frac{3x+1}{x-3}$

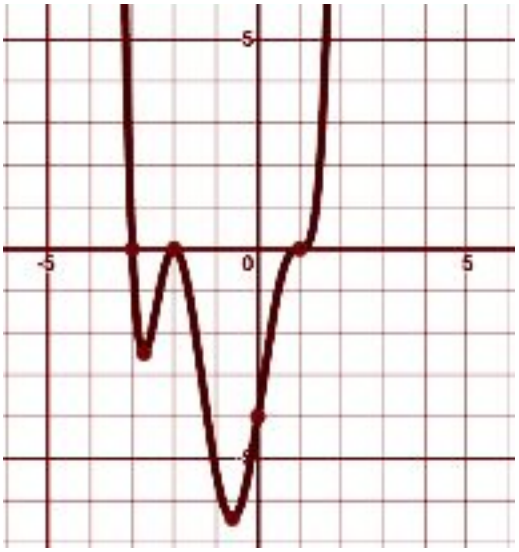
a. Use polynomial division OR the Giant One method to rewrite $f(x)$ in the form $y = \frac{a}{x-h} + k$

b. Use your answer to part b to sketch of graph of $f(x)$.

c. State any intercepts, asymptotes and end behavior for $f(x)$ below.

2) The graph of the polynomial $p(x)$ is shown at right.

Graph $y = \frac{1}{p(x)}$ on the same set of axes. State any intercepts and asymptotes below for $y = \frac{1}{p(x)}$.



3) Given $f(x) = \frac{x^2+5x+6}{x+1}$.

a. Rewrite f(x) in factored form.

b. Rewrite f(x) using polynomial division.

c. Identify any intercepts and asymptotes.

d. Sketch a graph of f(x) at right.

4) Solve $\frac{x^2-8x+3}{x+3} > 6$. State your solution using interval notation and inequality notation.

5) Given $f(x) = \frac{x+2}{x^2+3x+2}$, identify all asymptotes, holes and intercepts. Also state the end behavior for f(x).