Name:_____Per. ____ Date: _____

Algebra 2B/Trig. Unit 5. Rational Functions

Lesson 2. Transformations of Parent Rational Function

- What is a rational function?

- Can the denominator of rational expression equal to 0 ? Why/Why not?

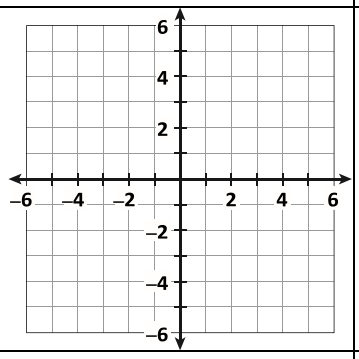
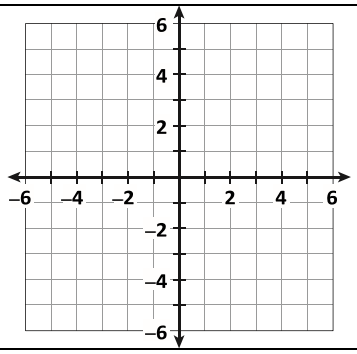
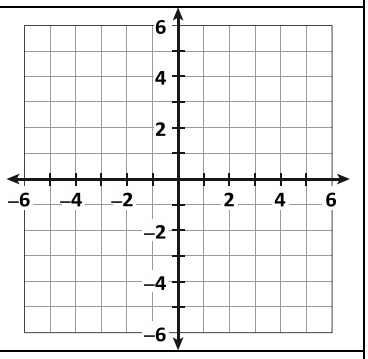
- What is the value X, the total number of the campers, that cannot be equivalent when you offer 30 scholarship in the last lesson. Why?

- Can the numerator of a rational expression equal to 0? Why/Why not?

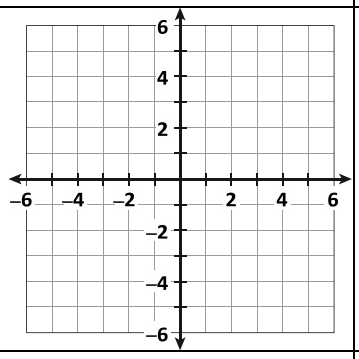
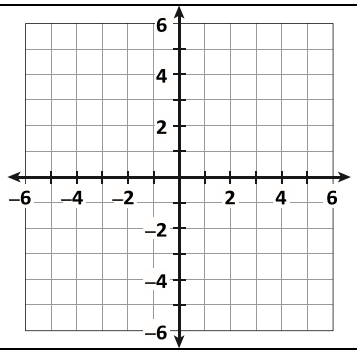
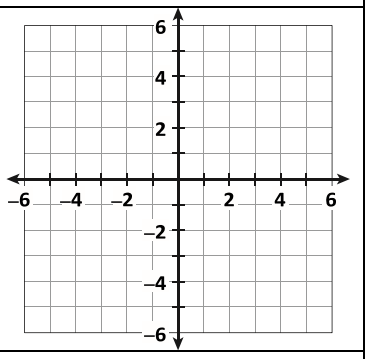
Lesson:

When using a function to model a real life situation like the fee per camper, you only use those values that make sense in the context of the situation. Now, we will look at the rational function in a theoretical view.

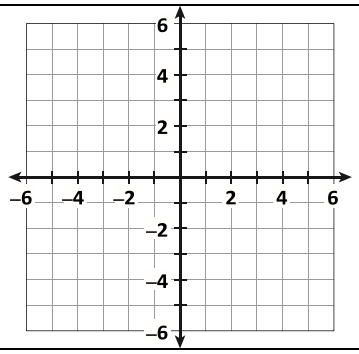
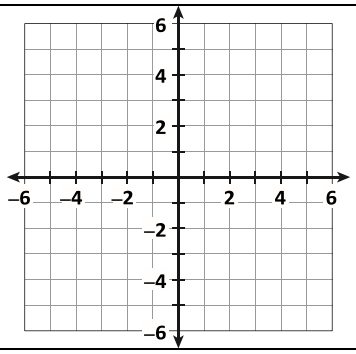
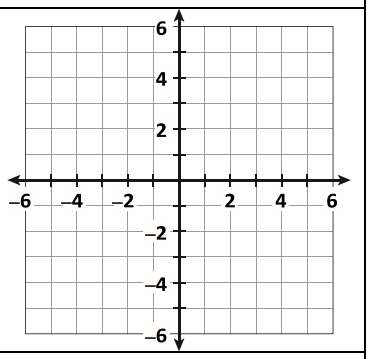
1. Fill out the chart and sketch the graph of the given rational function equations.

X		F(x) = $\frac{1}{x}$	G(x)= $\frac{2}{x}$	H(x)= $\frac{4}{x}$
-4				
-3				
-2				
-1				
0				
1				
2				
3				
4				
Vertical asymptote				
Horizontal asymptote				
X-intercept				
Y-intercept				
Sketch the Graph				
Transformation from the parent function F(x) = $\frac{1}{x}$		Parent Function		
NOTE:				

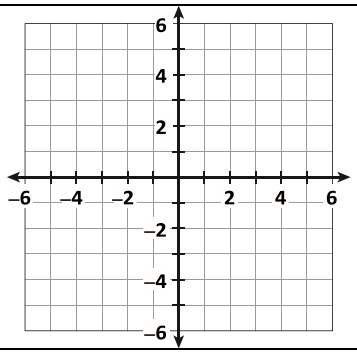
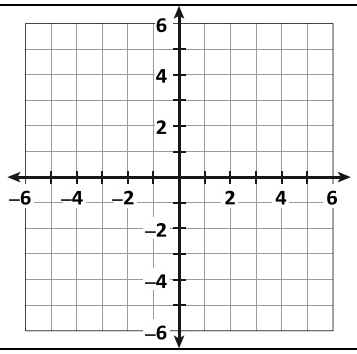
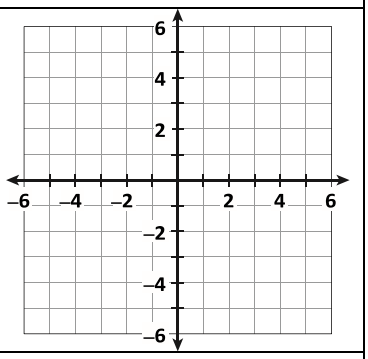
2. Fill out the chart and sketch the graph of the given rational function equations.

X		F(x) = $\frac{1}{x}$	J (x)= - $\frac{2}{x}$	K (x)= - $\frac{4}{x}$
-4				
-3				
-2				
-1				
0				
1				
2				
3				
4				
Vertical asymptote				
Horizontal asymptote				
X-intercept				
Y-intercept				
Sketch the Graph				
Transformation from the parent function F(x) = $\frac{1}{x}$		Parent Function		
NOTE:				

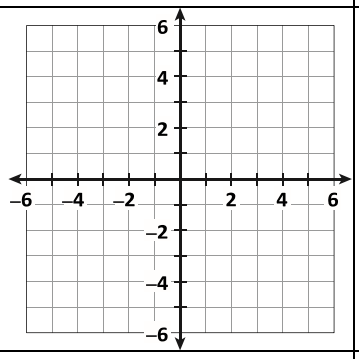
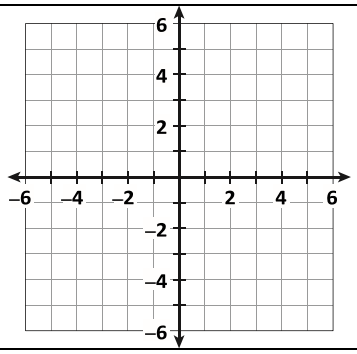
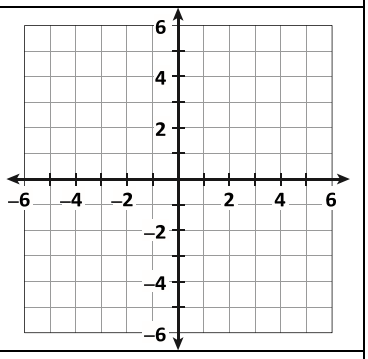
3. Fill out the chart and sketch the graph of the given rational function equations.

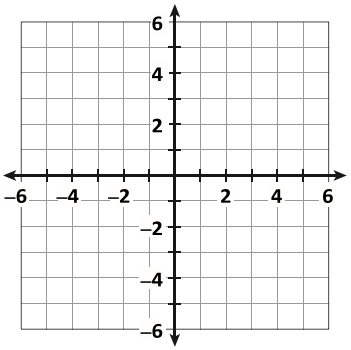
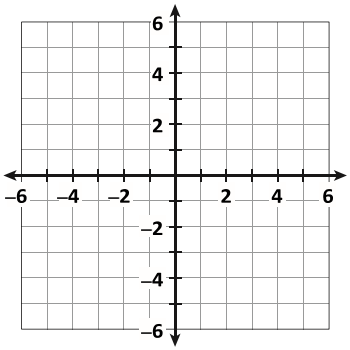
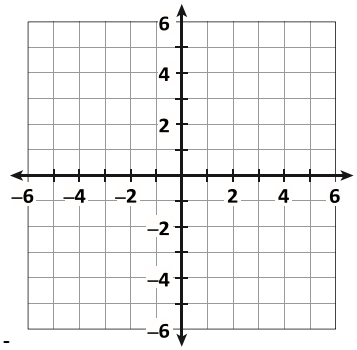
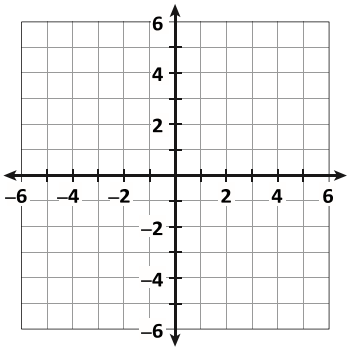
X		F(x) = $\frac{1}{x}$	L(x)= $\frac{1}{2x}$	M(x)= $\frac{1}{3x}$
-3				
-2				
-1				
0				
1				
2				
3				
Vertical Asymptote				
Horizontal Asymptote				
X-intercept				
Y-intercept				
Sketch the Graph				
Transformation from the parent function F(x) = $\frac{1}{x}$		Parent Function		
NOTE				

4. Fill out the chart and sketch the graph of the given rational function equations.

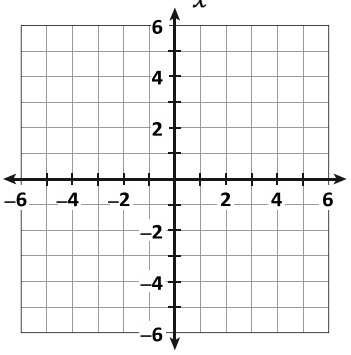
X		F(x) = $\frac{1}{x}$	N(x)= $\frac{1}{x+2}$	P(x)= $\frac{1}{x-3}$
-4				
-3				
-2				
-1				
0				
1				
2				
3				
4				
Vertical asymptote				
Horizontal asymptote				
X-intercept				
Y-intercept				
Sketch the Graph				
Transformation from the parent function F(x) = $\frac{1}{x}$		Parent Function		
NOTE				

5. Fill out the chart and sketch the graph of the given rational function equations.

X		F(x) = $\frac{1}{x}$	R(x)= $\frac{1}{x}$ + 2	S(x)= $\frac{1}{x}$ -1
-4				
-3				
-2				
-1				
0				
1				
2				
3				
4				
Vertical asymptote				
Horizontal asymptote				
X-intercept				
Y-intercept				
Sketch the Graph				
Transformation from the parent function F(x) = $\frac{1}{x}$		Parent Function		
NOTE:				

Homework 5-2	Lesson 2 Transformation of Rational Functions
1) f (x) = $\frac{1}{x}$  a) Asymptotes: Vertical: X = Horizontal: Y = b) Intercepts: X-intercept: y-intercept:	2) Sketch and describe G(x) = $\frac{1}{x+2}$  a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$ b) Asymptotes: Vertical: X = Horizontal: Y = c) X-intercept: y-intercept:
3) Sketch and describe H(x) = $\frac{1}{x-2}$  a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$ b) Asymptotes: Vertical: X = Horizontal: Y = c) X-intercept: y-intercept:	4) Sketch and describe J(x) = $\frac{1}{x}$ + 2  a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$ b) Asymptotes: Vertical: X = Horizontal: Y = c) X-intercept: y-intercept:

5) K(x) = $\frac{1}{x} - 2$

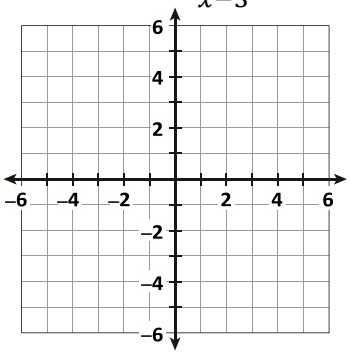


a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$

b) Asymptotes:
Vertical: X = Horizontal: Y =

c) X-intercept: y-intercept:

6) L(x) = $\frac{2}{x-3} + 1$

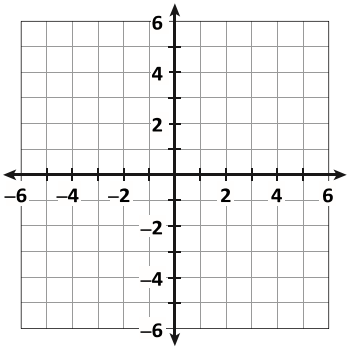


a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$

b) Asymptotes:
Vertical: X = Horizontal: Y =

c) X-intercept: y-intercept:

7) M(x) = $\frac{3}{x}$ +1

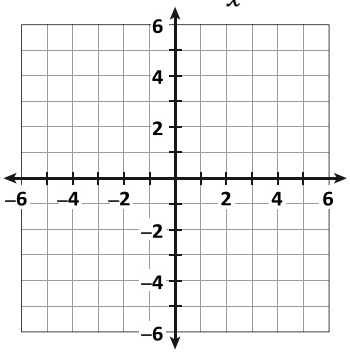


a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$

b) Asymptotes:
Vertical: X = Horizontal: Y =

c) X-intercept: y-intercept:

8) N(x) = - $\frac{1}{x}$

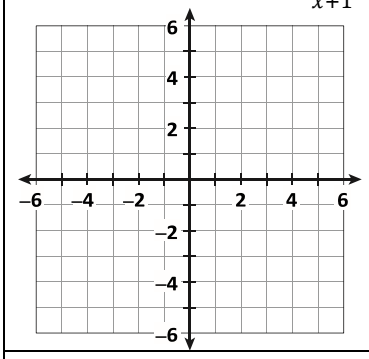


a) Describe the Transformation from the parent function f (x) = $\frac{1}{x}$

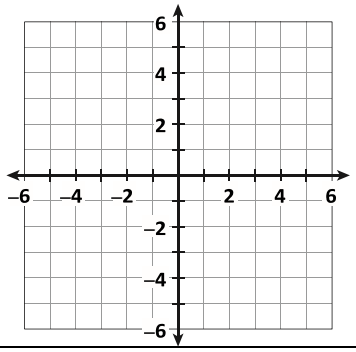
b) Asymptotes:
Vertical: X = Horizontal: Y =

c) X-intercept: y-intercept:

9) Sketch P(x) = $-\frac{1}{x+1} - 2$



10) Sketch R(x) = $3 + \frac{4}{x-2}$



11) Write a function that is f(x) = $\frac{1}{x}$ translated 3 units down and 5 units to the right.

12) Describe the graph of s(x) = $\frac{1}{4x}$ As a transformation of the parent function F(x) = $\frac{1}{x}$

13) The parent function f(x) = $\frac{1}{x}$ Is translated 4 units up and 7 units to the right. Without graphing identify the asymptotes.

14) What is the vertical asymptote of T(x) = $\frac{2}{x+1} - 5$

Warm up for the next lesson – Factoring

15) Factor $X^2 - 4$

16) Factor $X^2 + 7X + 12$

17) Factor $X^3 - X^2 - 2x$

18) Factor $8X^3 + 125$

19) Factor $27X^3 - 64$

20) Factor Completely $3X^2 - 9X$

*2 Extra Credit Homework Point: Write a real life situation/scenario that can be written as a rational function (0.5pt), Write the rational function equation (0.5pt), Fill out the data on a T-Chart (0.5pt), Graph the function equation (0.5pt).