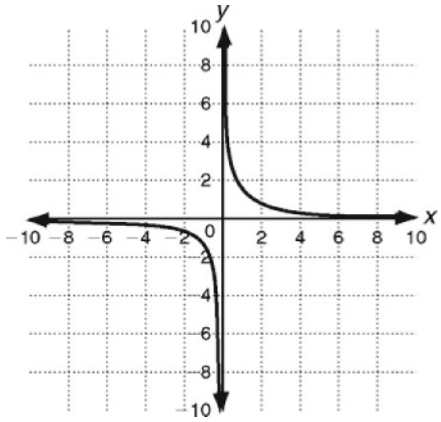
Name _____ Date _____ Class _____

LESSON 8-1

Graphing Simple Rational Functions

Practice and Problem Solving: A/B

Using the graph of $f(x)=\frac{1}{x}$ as a guide, describe the transformation and graph the function.



1. $g(x)=\frac{2}{x+4}$

_____

Identify the asymptotes, domain, and range of each function.

2. $g(x)=\frac{1}{x-3}+5$ _____

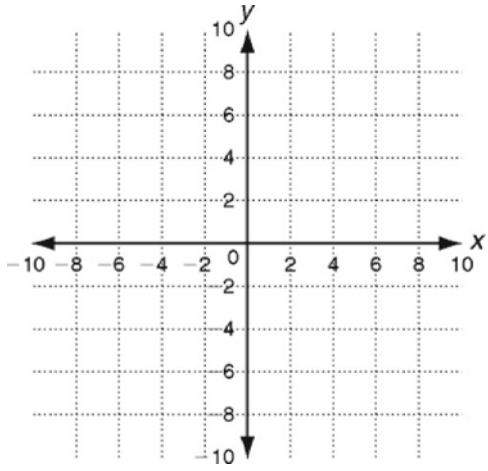
_____

3. $g(x)=\frac{1}{x+8}-1$ _____

_____

Identify the asymptotes of the function. Then graph.

4. $f(x)=\frac{x^2+4x-5}{x+1}$



a. Vertical asymptote:

_____

b. Horizontal asymptote:

_____

c. Graph.

Solve.

5. The number n of daily visitors to a new store can be modeled by the function $n=\frac{(250x+1000)}{x}$, where x is the number of days the store has been open.

a. What is the horizontal asymptote of this function and what does it represent? _____

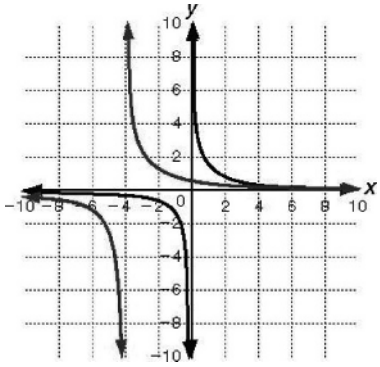
b. To the nearest integer, how many visitors can be expected on day 30? _____

MODULE 8 Rational Functions

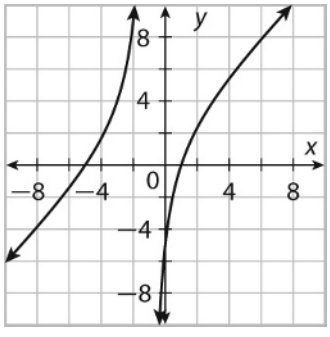
LESSON 8-1

Practice and Problem Solving: A/B

1. Translate 4 units left and vertically stretched by a factor of 2.



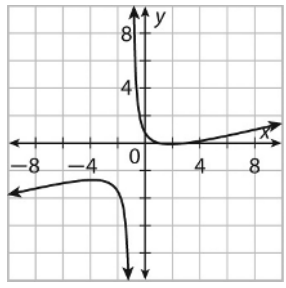
2. Vertical asymptote: $x = 3$; horizontal asymptote: $y = 5$; domain: $\{x \mid x \neq 3\}$; range: $\{y \mid y \neq 5\}$
3. Vertical asymptote: $x = -8$; horizontal asymptote: $y = -1$; domain: $\{x \mid x \neq -8\}$; range: $\{y \mid y \neq -1\}$
4. a. Vertical asymptote: $x = -1$
   b. Horizontal asymptote: none
   c.



5. a. The horizontal asymptote is 250; it is the average number of people who will visit the store each day, long after the store opens.
   b. 283

Practice and Problem Solving: C

1. Vertical asymptote: $x = -5$; horizontal asymptote: $y = 7$; domain: $\{x \mid x \neq -5\}$; range: $\{y \mid y \neq 7\}$
2. Vertical asymptote: $x = 9$; horizontal asymptote: $y = -\frac{1}{4}$; domain: $\{x \mid x \neq 9\}$; range: $\left\{y \mid y \neq -\frac{1}{4}\right\}$
3. Vertical asymptote: $x = -\frac{2}{3}$; horizontal asymptote: $y = -12$; domain: $\left\{x \mid x \neq -\frac{2}{3}\right\}$; range: $\{y \mid y \neq -12\}$
4. a. 1 and 3
   b. vertical asymptote; $x = -1$
   c. horizontal asymptote: none
   d.



5. 50 miles per hour

Practice and Problem Solving: Modified

1. Translated 2 units right