

LESSON
8-1

Graphing Simple Rational Functions

Reading Strategies: Use a Graphic Organizer

You can use a graphic organizer to help organize what you know about the graphs of rational functions from looking at their equations.

<p>Rational Function</p> $f(x) = \frac{a}{x-h} + k$	<p>Domain and Range</p> <p>The domain of the function is $\{x x \neq h\}$.</p> <p>The range of the function is $\{y y \neq k\}$.</p>
<p>Asymptotes</p> <p>The graph is a hyperbola.</p> <p>$x = h$ is the vertical asymptote.</p> <p>$y = k$ is the horizontal asymptote.</p>	<p>Example</p> $f(x) = \frac{1}{x-3} + 2$ <p>Vertical asymptote: $x = 3$</p> <p>Horizontal asymptote: $y = 2$</p> <p>Domain: $\{x x \neq 3\}$</p> <p>Range: $\{y y \neq 2\}$</p>

Identify the vertical and horizontal asymptotes and the domain and range for each function.

1. $f(x) = \frac{1}{x-6} - 5$

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

Use the graph to answer each question.

3. What is the vertical asymptote? _____
4. What is the horizontal asymptote? _____
5. What is the domain? _____
6. What is the range? _____
7. Write a possible equation for this graph.

