

7.2**Extra Practice**

In Exercises 1 and 2, graph the function. Compare the graph with the graph

of $f(x) = \frac{1}{x}$.

1. $h(x) = \frac{-2}{x}$

2. $g(x) = \frac{0.25}{x}$

In Exercises 3 and 4, graph the function. Find the domain and range.

3. $m(x) = \frac{-3}{x} - 4$

4. $k(x) = \frac{1}{x-3} + 5$

In Exercises 5 and 6, rewrite the function in the form $g(x) = \frac{a}{x-h} + k$. Graph the

function. Describe the graph of g as a transformation of the graph of $f(x) = \frac{a}{x}$.

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

6. $g(x) = \frac{2x+8}{3x-12}$

7. Sketch a graph of the rational function f with the given characteristics.

- The domain of f is all real numbers except $x = -2$.
- $f(x) \rightarrow 1$ as $x \rightarrow -\infty$ and as $x \rightarrow +\infty$.

7.3

Extra Practice

In Exercises 1–4, simplify the expression, if possible.

1. $\frac{2x^3 - 8x^2}{6x^2}$

2. $\frac{5xy^3 - 2x^2y^2}{x^2y^2}$

3. $\frac{x^2 - 5x + 4}{x^2 - 2x + 1}$

4. $\frac{x^3 + 3x^2}{x^2 - 5x - 24}$

In Exercises 5–8, find the product.

5. $\frac{3xy}{xy^2} \cdot \frac{y}{2x}$

6. $\frac{x^2 - 2x - 3}{x^2 - 1} \cdot \frac{x^2 - 2x - 63}{x^2 + 4x - 21}$

7. $\frac{x^2 + x - 30}{x^2 - 25} \cdot (x^2 + 3x - 10)$

8. $\frac{x^2 - 2x}{x + 7} \cdot \frac{x^3 + 8}{x^3 - 4x}$

In Exercises 9–12, find the quotient.

9. $\frac{x + y}{7xy} \div \frac{4x}{y}$

10. $\frac{9x}{2x + 6} \div \frac{x^2 - 8x}{x^2 - 5x - 24}$

11. $\frac{3x^2 + 11x - 4}{x^3} \div (3x^2 - 31x + 10)$

12. $\frac{x^2 + 2x - 15}{x^2 - 3x - 40} \div \frac{x^2 + 8x - 9}{x^2 + x - 72}$

13. Find the expression that makes the following statement true. Assume $x \neq -9$, $x \neq -6$, and $x \neq 4$.

$$\frac{x + 6}{x^2 + 17x + 72} \div \frac{x + 6}{\boxed{}} = \frac{x - 4}{x + 8}$$

14. Find the ratio of the perimeter to the area of the triangle shown.

