

# 8-2 Practice

## Rational Functions and Their Graphs

Find the domain, points of discontinuity, and  $x$ - and  $y$ -intercepts of each rational function. Determine whether the discontinuities are removable or nonremovable.

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

2.  $y = \frac{(x-3)(x+1)}{x-2}$

3.  $y = \frac{2}{x+1}$

4.  $y = \frac{4x}{x^4 + 16}$

Find the vertical asymptotes and holes for the graph of each rational function.

5.  $y = \frac{5-x}{x^2-1}$

6.  $y = \frac{x^2-2}{x+2}$

7.  $y = \frac{x}{x(x-1)}$

8.  $y = \frac{x+3}{x^2-9}$

9.  $y = \frac{x-2}{(x+2)(x-2)}$

10.  $y = \frac{x^2-4}{x^2+4}$

11.  $y = \frac{x^2-25}{x-4}$

12.  $y = \frac{(x-2)(2x+3)}{(5x+4)(x-3)}$

Find all P.O.D.s and sketch the graph of each rational function.

13.  $y = \frac{2}{x-6}$

14.  $y = \frac{x+2}{x-4}$

15.  $y = \frac{2x^2+3}{x^2-6}$

16.  $y = \frac{3x-12}{x^2-2}$

**8-2****Practice** (continued)

## Rational Functions and Their Graphs

Find all P.O.D.s and sketch the graph of each rational function.

17.  $y = \frac{3}{x-2}$

18.  $y = \frac{3}{(x-2)(x+2)}$

19.  $y = \frac{x}{x^2+4}$

20.  $y = \frac{x+2}{x-1}$

21.  $y = \frac{x}{x(x-6)}$

22.  $y = \frac{2x}{x-6}$

23.  $y = \frac{x^2-1}{x^2-4}$

24.  $y = \frac{2x^2+10x+12}{x^2-9}$