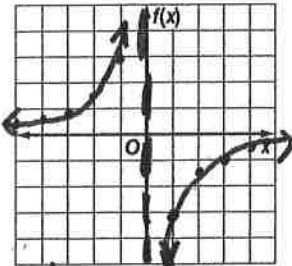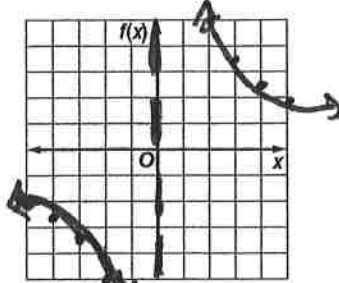## 9-3 Skills Practice

Graphing Rational Functions

Graph each function. Tell wheter it has an asymptote or hole and where it is located.

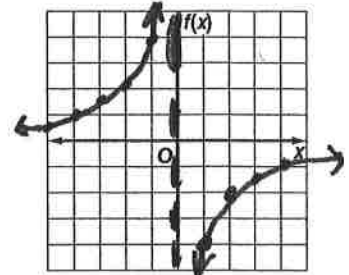**1.** $f(x) = \frac{-3}{x}$

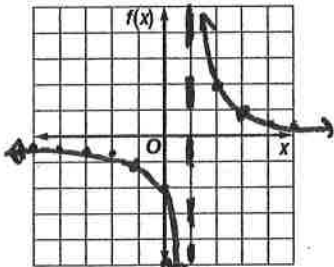Asymptote $x = 0$

2. $f(x) = \frac{10}{x}$
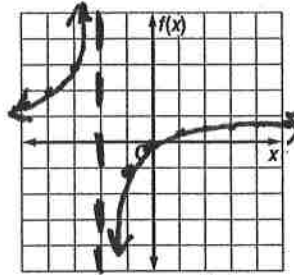
Asymptote $x = 0$

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

asymptote $x = 0$
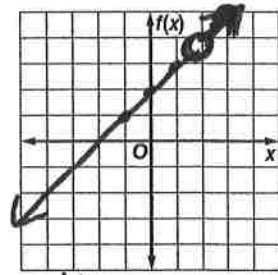
4. $f(x) = \frac{2}{x-1}$

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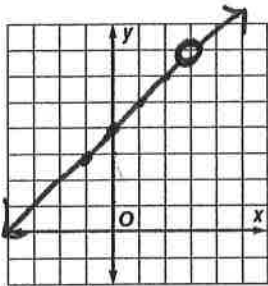
5. $f(x) = \frac{x}{x+2}$

asymptote $x = -2$

6. $f(x) = \frac{x^2-4}{x-2}$
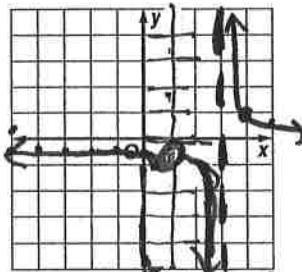
Hole $x = 2$

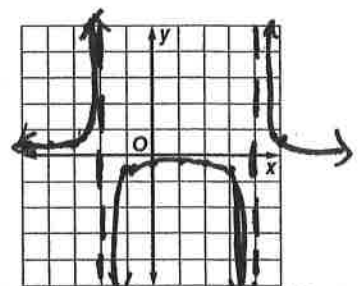**7.** $f(x) = \frac{x^2+x-12}{x-3}$

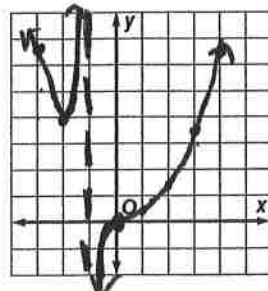Hole $x = 3$

8. $f(x) = \frac{x-1}{x^2-4x+3}$

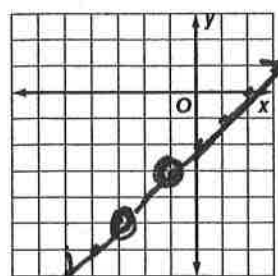Asymptote $x = 3$ Hole $x = 1$

9. $f(x) = \frac{3}{x^2-2x-8}$

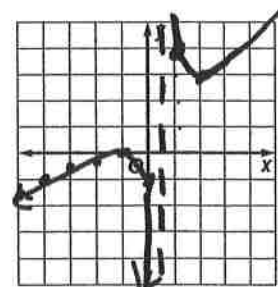asymptote $x = 4$ $x = -2$

9. $f(x) = \frac{x^3}{2x+2}$

asymptote $x = -1$

10. $f(x) = \frac{2x^3+4x^2-10x-12}{2x^2+8x+6}$

Holes $\begin{cases} x = -1 \\ x = -3 \end{cases}$

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

Asymptote $x = \frac{1}{2}$