

Graph the function  $f(x)$  with the following properties.

- A. The domain of  $f$  is  $(-\infty, 3) \cup (3, \infty)$ .
- B. The  $x$ -intercept is at  $-3$ , and the  $y$ -intercept is  $2$ .
- C. The function is not odd or even.
- D. The asymptotes are described by the following limits:  
 $\lim_{x \rightarrow -\infty} f(x) = -2$ ,  $\lim_{x \rightarrow \infty} f(x) = -2$ ,  $\lim_{x \rightarrow 3^-} f(x) \text{ DNE } (+\infty)$ ,  $\lim_{x \rightarrow 3^+} f(x) \text{ DNE } (-\infty)$ .
- E.  $f(x)$  is increasing on its entire domain.
- F. The only critical number is  $x = 3$ , because the derivative is not defined when  $x = 3$ .
- G. The function is concave up on  $(-\infty, 3)$  and concave down on  $(3, \infty)$ .

