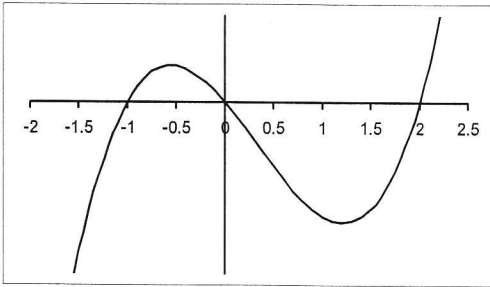
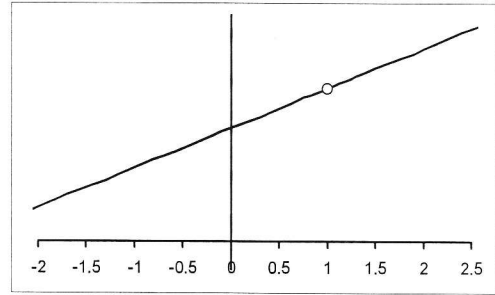


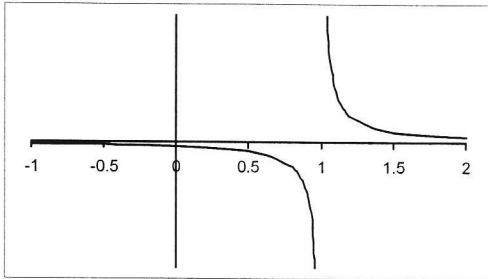
2. Determine the values where each graph below is discontinuous and find a possible equation.



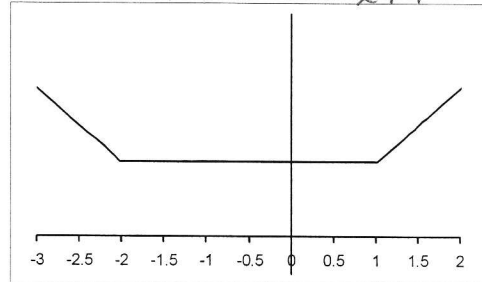
polynomial function
continuous over $(-\infty, \infty)$
 $f(x) = k(x+1)x(x-2)$
 $f(x) = x^3 - x^2 - 2x$



rational function
hole at $x=1$
 $f(x) = \frac{(x-5)(x-1)}{x-1}$
 $f(x) = \frac{x^2 - 6x + 5}{x-1}$



possible equation
rational function
 $f(x) = \frac{x^2 + 1}{(x-1)(2x^2 - 5)}$

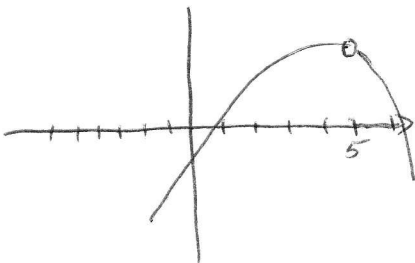


piecewise function
 $f(x) = \begin{cases} -2x-2 & x \leq -2 \\ 2 & -2 < x \leq 1 \\ 2x & x \geq 1 \end{cases}$

3. In each case sketch a graph with the given characteristics.

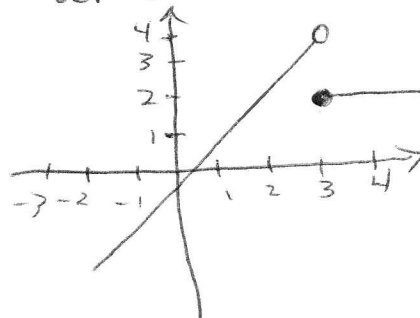
A. $f(4)$ is undefined
and $\lim_{x \rightarrow 4} f(x) = 2$

there is
a hole at
 $x=4$



B. $f(3) = 2$
and $\lim_{x \rightarrow 3} f(x)$ doesn't exist

There is a
jump or break
at $x=3$



C. $f(1) = 3$
and $\lim_{x \rightarrow 1} f(x) = -2$

there is
a displaced
point at $x=1$

