Continuity Name_____Hour_____

t in order for a function to be continuous at $x = a$ both $f(a)$ and $\lim_{x \to a} f(x)$ must exist and we must have,

$$\lim_{x \to a} f(x) = f(a)$$

Recall that:

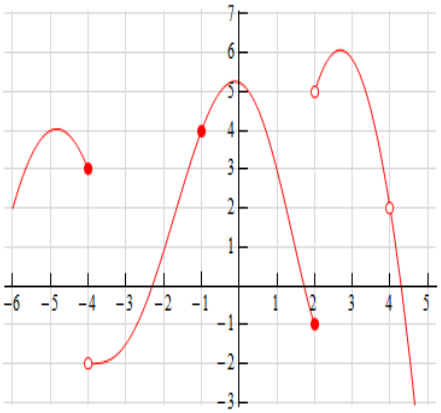
Given a function $f(x)$ if,

$$\lim_{x \to a^+} f(x) = \lim_{x \to a^-} f(x) = L$$

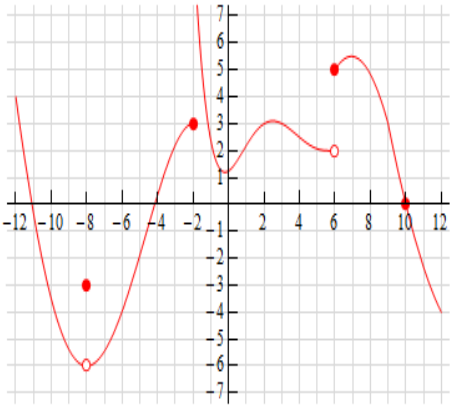
then the normal limit will exist and

$$\lim_{x \to a} f(x) = L$$

1. The graph of $f(x)$ is given below. Based on this graph determine where the function is discontinuous.



2. The graph of $f(x)$ is given below. Based on this graph determine where the function is discontinuous.

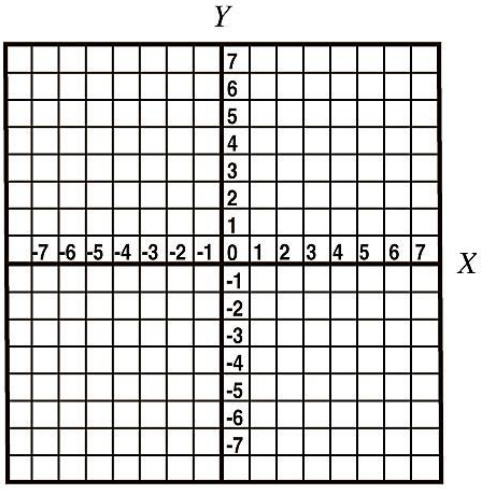


Graph the following piecewise function. Determine if the function is continuous or discontinuous at the indicated points

3.

$$g(x) = \begin{cases} 2x & x < 6 \\ x - 1 & x \geq 6 \end{cases}$$

(a) $x = 4$ **(b)** $x = 6$



4.

$$h(t) = \begin{cases} t^2 & t < -2 \\ t + 6 & t \geq -2 \end{cases}$$

(a) $t = -2$ **(b)** $t = 10$