

Section 2-3 : One-Sided Limits

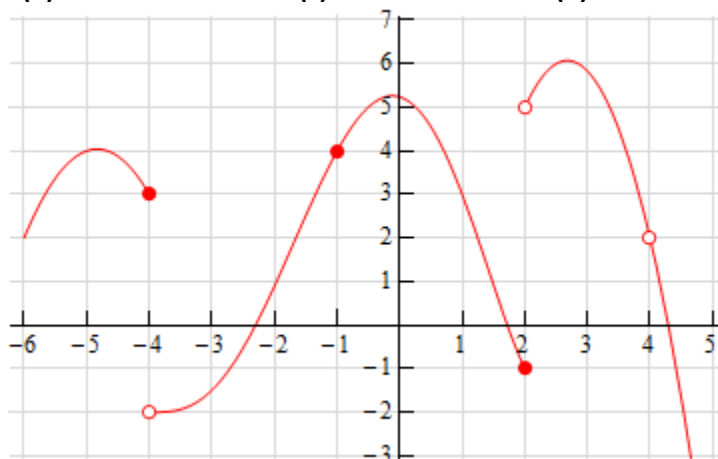
1. Below is the graph of $f(x)$. For each of the given points determine the value of $f(a)$, $\lim_{x \rightarrow a^-} f(x)$, $\lim_{x \rightarrow a^+} f(x)$, and $\lim_{x \rightarrow a} f(x)$. If any of the quantities do not exist clearly explain why.

(a) $a = -4$

(b) $a = -1$

(c) $a = 2$

(d) $a = 4$



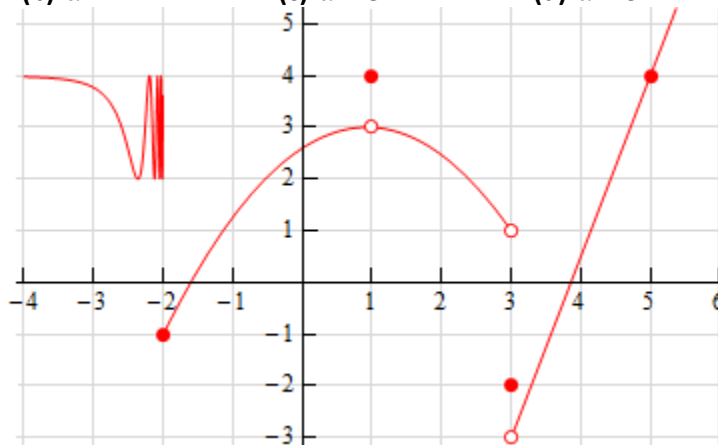
2. Below is the graph of $f(x)$. For each of the given points determine the value of $f(a)$, $\lim_{x \rightarrow a^-} f(x)$, $\lim_{x \rightarrow a^+} f(x)$, and $\lim_{x \rightarrow a} f(x)$. If any of the quantities do not exist clearly explain why.

(a) $a = -2$

(b) $a = 1$

(c) $a = 3$

(d) $a = 5$



3. Sketch a graph of a function that satisfies each of the following conditions.

$$\lim_{x \rightarrow 2^-} f(x) = 1$$

$$\lim_{x \rightarrow 2^+} f(x) = -4$$

$$f(2) = 1$$

4. Sketch a graph of a function that satisfies each of the following conditions.

$$\lim_{x \rightarrow 3^-} f(x) = 0$$

$$\lim_{x \rightarrow 3^+} f(x) = 4$$

$f(3)$ does not exist

$$\lim_{x \rightarrow -1} f(x) = -3$$

$$f(-1) = 2$$

