

Evaluating the Limit of a Function at a Point Graphically

Directions: Evaluate each of the following.

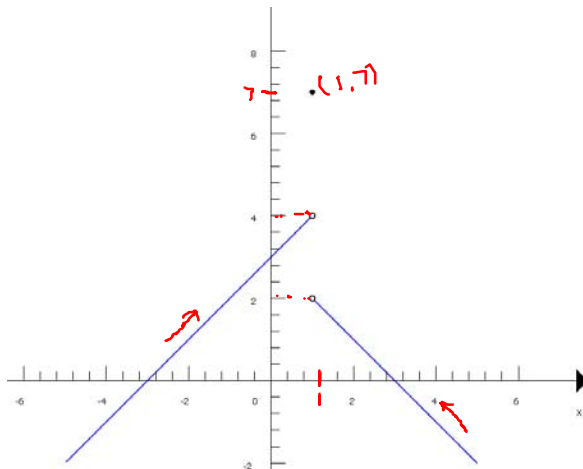
1) Let $f(x) = \begin{cases} 3+x & \text{if } x < 1 \\ 7 & \text{if } x = 1 \\ 3-x & \text{if } x > 1 \end{cases}$

a) $f(1) = 7$

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

c) $\lim_{x \rightarrow 1^-} f(x) = 4$

d) $\lim_{x \rightarrow 1} f(x) = \text{does not exist}$

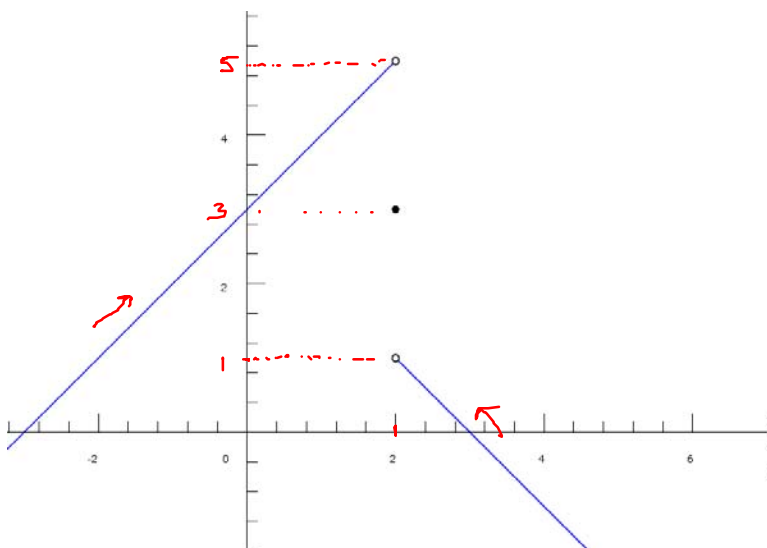


2) a) $f(2) = 3$

b) $\lim_{x \rightarrow 2^+} f(x) = 5$

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

d) $\lim_{x \rightarrow 2} f(x) = \text{does not exist}$

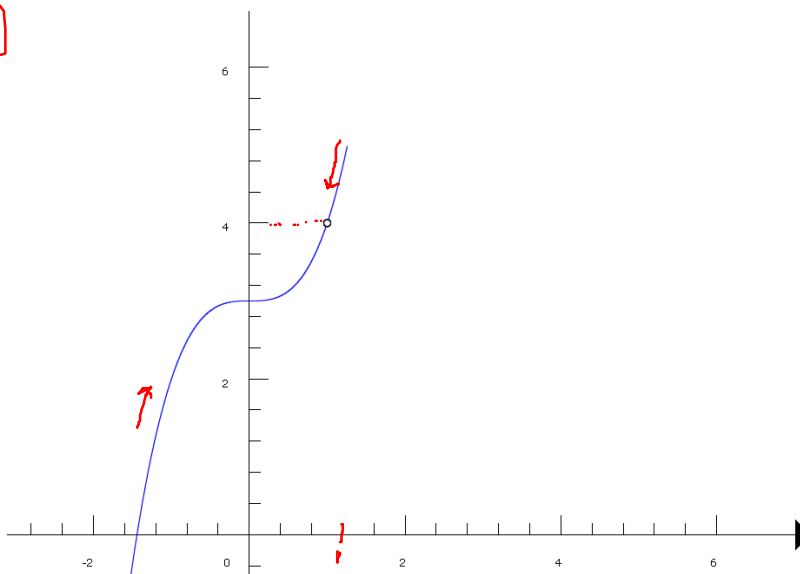


3) a) $f(1) = \text{does not exist}$

b) $\lim_{x \rightarrow 1^+} f(x) = 4$

c) $\lim_{x \rightarrow 1^-} f(x) = 4$

d) $\lim_{x \rightarrow 1} f(x) = 4$



- 4) a) $\lim_{x \rightarrow -2^-} f(x) = 0$
- b) $\lim_{x \rightarrow -2^+} f(x) = 0$
- c) $\lim_{x \rightarrow -2} f(x) = 0$
- d) $f(-2) = 3$
- e) $\lim_{x \rightarrow \infty} f(x) = \infty$
- f) $\lim_{x \rightarrow -\infty} f(x) = \infty$

