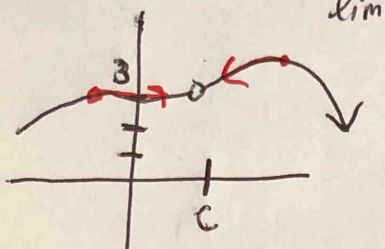
If hole in graph, one-sided limits are same as the full limit

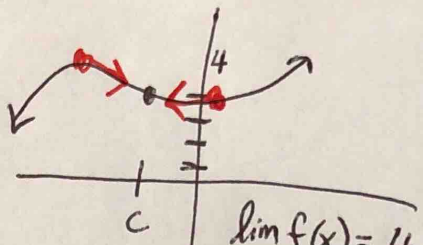


$\lim_{x \to c^-} f(x) = 3$

$\lim_{x \to c^+} f(x) = 3$

$\lim_{x \to c} f(x) = 3$

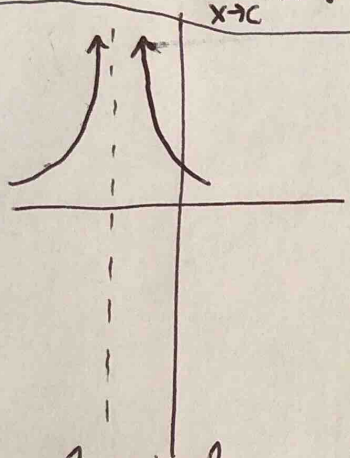
If function is continuous, one-sided limits are same as the full limit



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

$\lim_{x \to c^+} f(x) = 4$

$\lim_{x \to c} f(x) = 4$

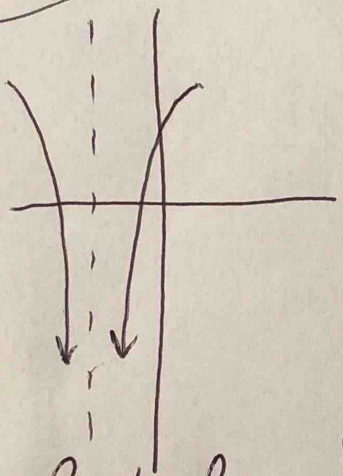


limit dne $(+\infty)$

$\lim_{x \to c^-} f(x) = +\infty$

$\lim_{x \to c^+} f(x) = +\infty$

$\lim_{x \to c} f(x) = \text{dne}$ $(+\infty)$

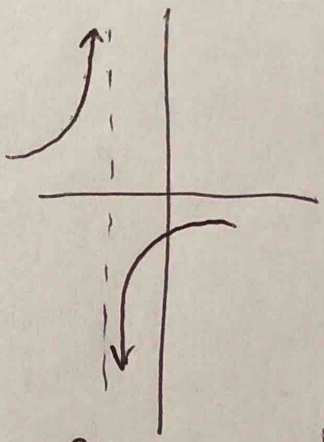


limit dne $(-\infty)$

$\lim_{x \to c^-} f(x) = -\infty$

$\lim_{x \to c^+} f(x) = -\infty$

$\lim_{x \to c} f(x) = \text{dne}$ $(-\infty)$

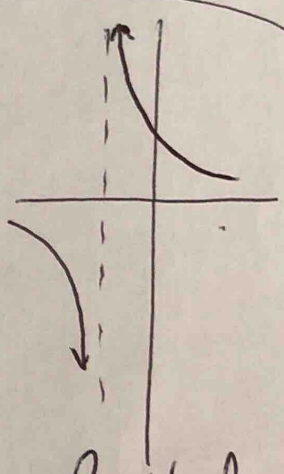


limit dne

$\lim_{x \to c^-} f(x) = +\infty$

$\lim_{x \to c^+} f(x) = -\infty$

$\lim_{x \to c} f(x) = \text{dne}$



limit dne

$\lim_{x \to c^-} f(x) = -\infty$

$\lim_{x \to c^+} f(x) = +\infty$

$\lim_{x \to c} f(x) = \text{dne}$