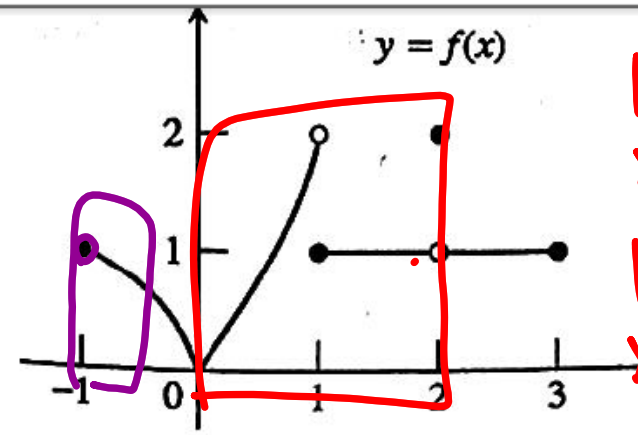


$\lim_{x\to 1} f(x) = DNE$

$\lim_{x\to 1^+} f(x) \neq \lim_{x\to 1^-} f(x)$

2.

$x > -1$ → from Rt.

(a) $\lim_{x\to -1^+} f(x) = 1$

(b) $\lim_{x\to 2} f(x)$ does not exist.

(c) $\lim_{x\to 2} f(x) = 2$

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

(e) $\lim_{x\to 1^+} f(x) = 1$

(f) $\lim_{x\to 1} f(x)$ does not exist.

$\lim_{x\to 2} f(x) = 1$

(g) $\lim_{x\to 0^+} f(x) = \lim_{x\to 0^-} f(x)$

(h) $\lim_{x\to c} f(x)$ exists at every c in $(-1, 1)$. $-1 < c < 1$

(i) $\lim_{x\to c} f(x)$ exists at every c in $(1, 3)$.

Continuity

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

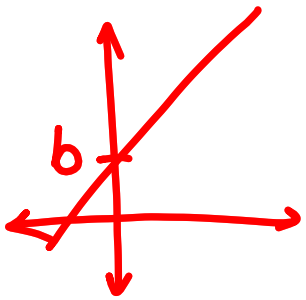
$$\lim_{x \to a} f(x) = L$$

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

Basic sketch of various functions.

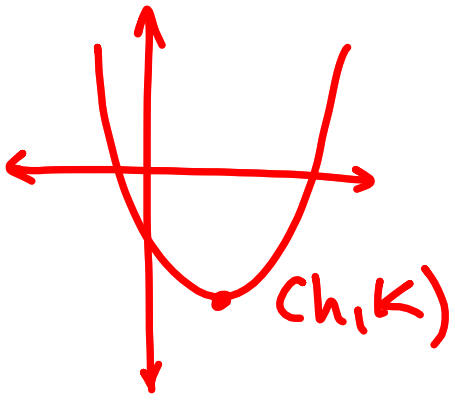
linear

$y = mx + b$



Quad.

$y = a(x-h)^2 + k$



$y = a(x-r_1)(x-r_2)$