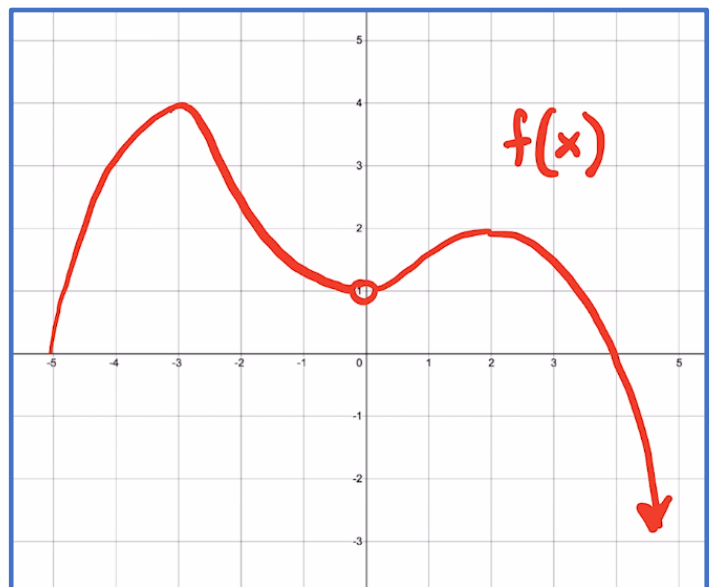


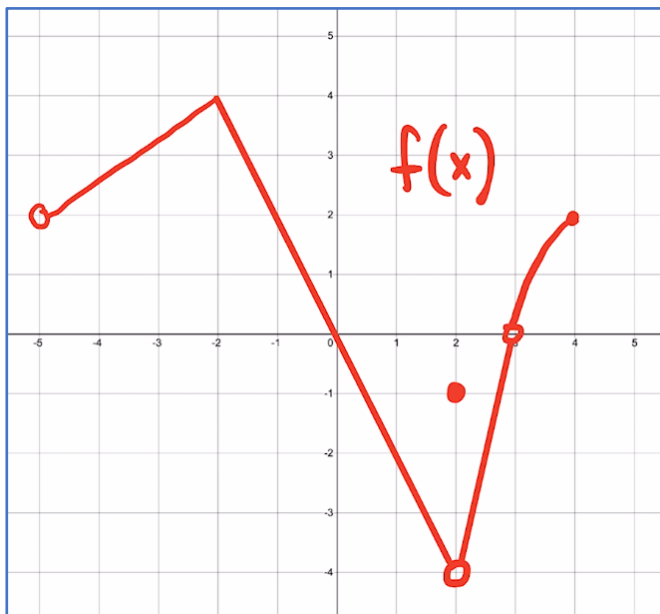
Limits “Boot Camp” for Calculus

- What is a limit?
- One-sided limits
- Properties of limits
- Calculating limits
- Squeeze Theorem
- Infinite Limits
- Limits at Infinity
- Continuity
- Important limits

What is a limit?



The notation:



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

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

$$\lim_{x \rightarrow -5} f(x) =$$

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

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

$$f(-2) =$$

$$f(0) =$$

$$f(3) =$$

$$f(2) =$$

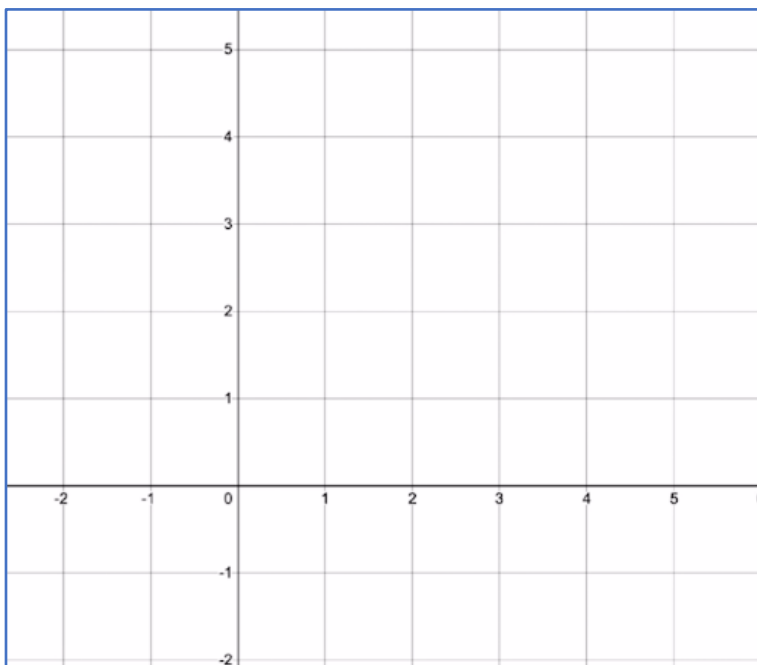
Let $f(x) = (x - 2)^2$

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

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

$$\lim_{x \rightarrow 8} (x - 2)^2 =$$

$$\lim_{x \rightarrow -3} (x - 2)^2 =$$



NOTE: Limits can FAIL TO EXIST

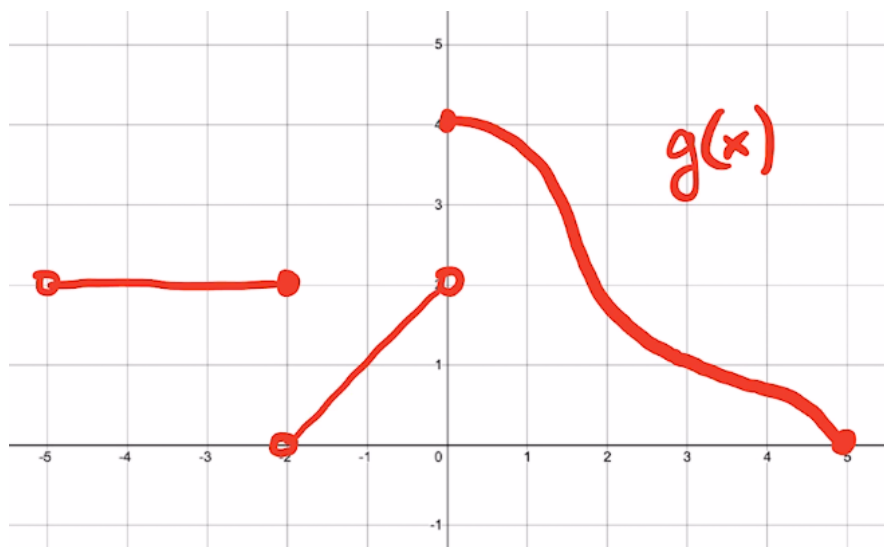
$$\lim_{x \rightarrow 3} g(x) =$$

$$\lim_{x \rightarrow 5} g(x) =$$

$$\lim_{x \rightarrow 0} g(x) =$$

$$\lim_{x \rightarrow -2} g(x) =$$

$$\lim_{x \rightarrow -5} g(x) =$$



Examples

$$\lim_{x \rightarrow 2} 3x + 1 =$$

$$\lim_{x \rightarrow -1} 5(x + 1)^3 =$$

$$\lim_{x \rightarrow \pi} \sin(x) =$$

$$\lim_{x \rightarrow 5} \frac{x+5}{(x-3)^2} =$$

$$\lim_{x \rightarrow 2} \sqrt{x-5} =$$

$$\lim_{x \rightarrow \frac{\pi}{2}} \sin(x) \cos(x) =$$