

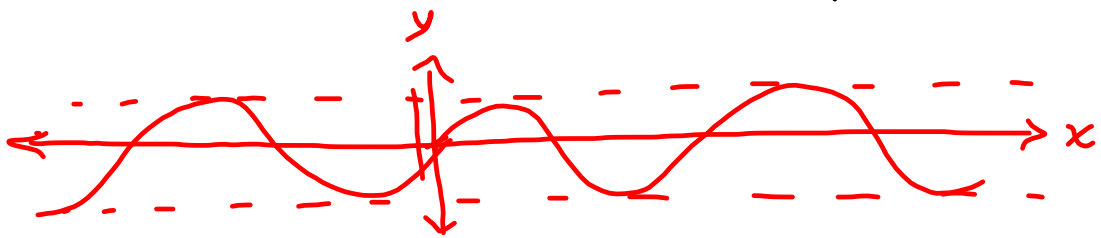
$$\# 4 \quad \frac{3x^3 - x + 1}{x + 3}$$

$$x \rightarrow \pm \infty$$

looks like $\sim \frac{3x^3}{x} = 3x^2$

p. 76 # 24

$$y = \frac{2x + \sin x}{x}$$



$$\lim_{x \rightarrow \infty} y = \lim_{x \rightarrow -\infty} y = 2$$

$$\# 30 \quad f(x) = \frac{1-x}{2x^2-5x-3}$$

$$\text{factor } 2x^2 - 5x - 3$$

$$(x-3)(2x+1) = 0$$

$$\begin{array}{l} \textcircled{x=3} \quad 2x+1=0 \\ \text{V.A.} \quad \textcircled{x=-\frac{1}{2}} \end{array}$$

$$\textcircled{x=3} \quad f(x) = \frac{-2}{0} \quad x=4 \quad \frac{-3}{9} \ominus$$

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

$$x=2 \quad \frac{-1}{-} \oplus$$

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

$$\# 30 \quad f(x) = \frac{1-x}{2x^2-5x-3}$$

$$\text{factor } 2x^2 - 5x - 3$$

$$(x-3)(2x+1) = 0$$

$$\begin{array}{l} \textcircled{x=3} \quad 2x+1=0 \\ \text{V.A.} \quad \textcircled{x=-\frac{1}{2}} \end{array}$$

$$x = -\frac{1}{2} \quad f(x) = \frac{1.5}{0} \oplus$$

$$x = -1 : \frac{2}{4} \oplus$$

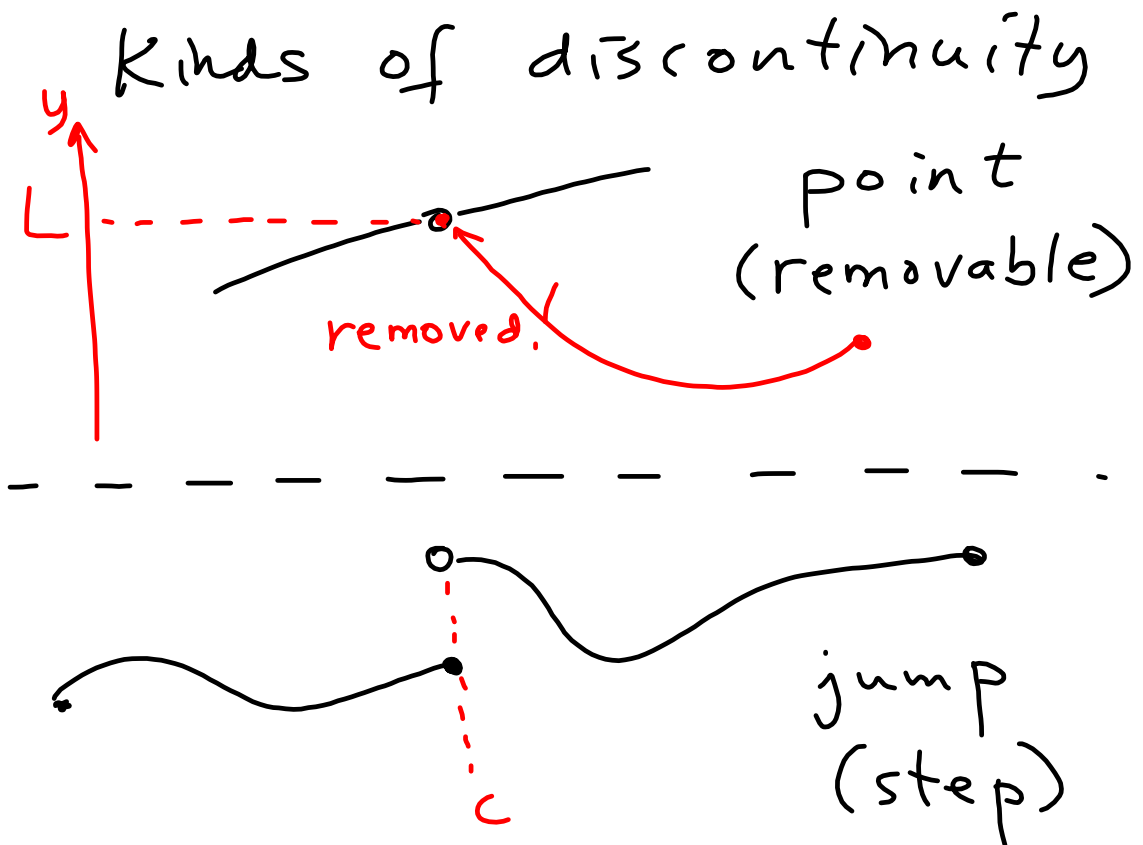
$$\lim_{x \rightarrow -\frac{1}{2}^-} f(x) = +\infty$$

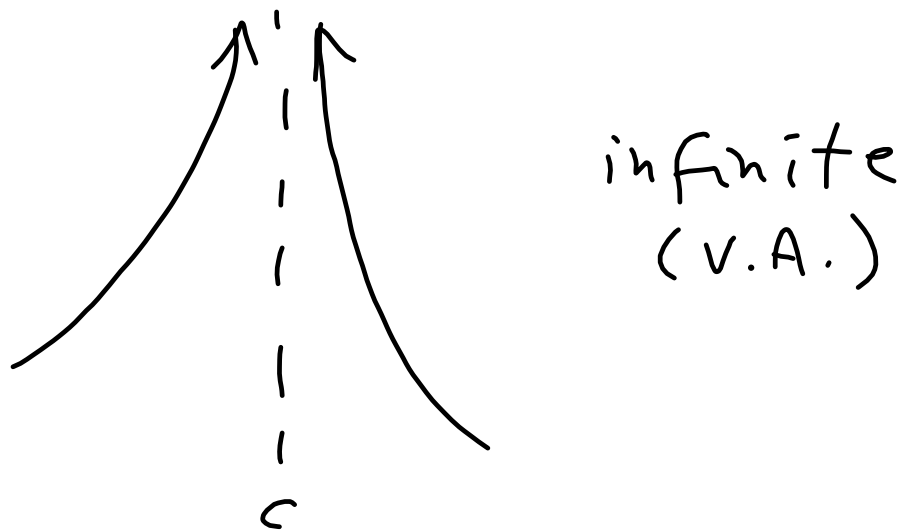
$$x = 0 : \frac{1}{-3} \ominus$$

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

Topic: continuity.

What is continuity of a fcn? Ability to draw the graph of the fcn while pressing pen(cil) down on the paper.





$f(x)$ is continuous @
 $(c, f(c))$ iff

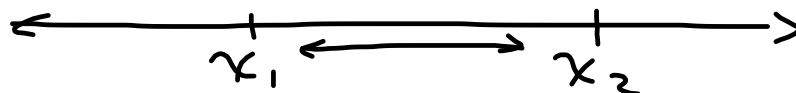
$$\lim_{x \rightarrow c^-} f(x) = \lim_{x \rightarrow c^+} f(x) = f(c)$$

f has a
limit

Continuity at a point

continuity on an interval

$f(x)$ is continuous at every point in interval



continuous fcn

continuous at every point in its domain

Topic: IVT Intermediate Value Theorem (p.83)