

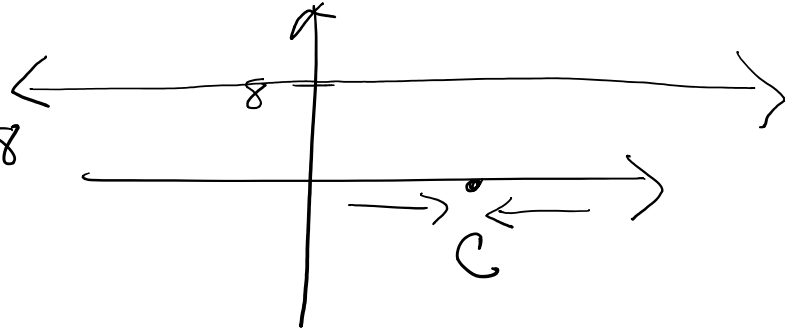
1.3 Limits Properties

Monday, August 28, 2017 8:45 AM

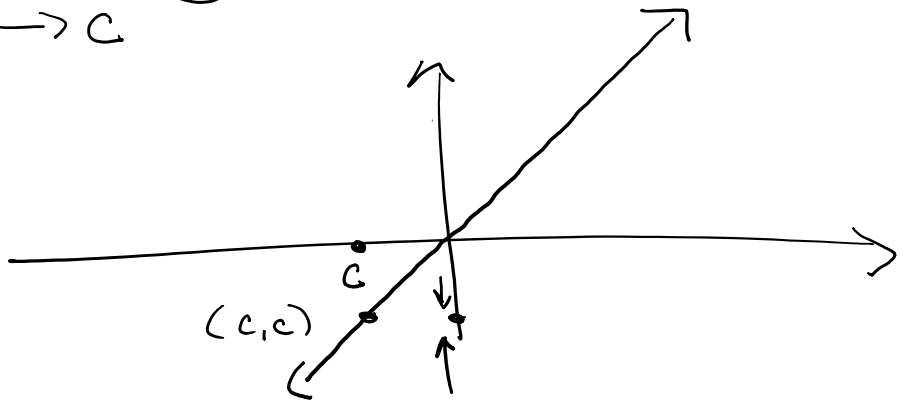
Thm 1.1.

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

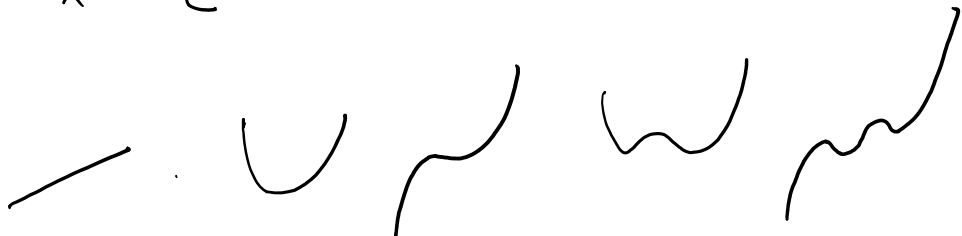
$$\lim_{x \rightarrow c} 8 = 8$$



$$2. \lim_{x \rightarrow c} x = c$$




$$3. \lim_{x \rightarrow c} x^n = c^n$$



$$\lim_{x \rightarrow 7} x^4 = 7^4$$

$$\lim_{x \rightarrow c} f(x) = L$$

$$\lim_{x \rightarrow c} g(x) = K$$

1. $\lim_{x \rightarrow c} b f(x)$ 

$$= b \cdot \lim_{x \rightarrow c} f(x)$$

$$\lim_{x \rightarrow 7} 5x^2 + 25$$

$$\lim_{x \rightarrow 7} 5(x^2 + 5)$$

$$5 \cdot \lim_{x \rightarrow 7} (x^2 + 5)$$

$$5 \left[\lim_{x \rightarrow 7} x^2 + \lim_{x \rightarrow 7} 5 \right]$$

$$5 [7^2 + 5]$$

$$5 [54]$$

Thm 1.1 ✓,

5 L 54 J

Thm 1.1 ✓
Thm 1.2 ✓

270

$$\lim_{x \rightarrow 0} \frac{(\sqrt{x+5} - \sqrt{5})}{x} \cdot \frac{(\sqrt{x+5} + \sqrt{5})}{\sqrt{x+5} + \sqrt{5}}$$

$$\lim_{x \rightarrow 0} \frac{x+5 + \cancel{\sqrt{5}\sqrt{x+5}} - \cancel{\sqrt{5}\sqrt{x+5}} - 5}{x(\sqrt{x+5} + \sqrt{5})}$$

$$\lim_{x \rightarrow 0} \frac{\cancel{x} \cdot 1}{\cancel{x}(\sqrt{x+5} + \sqrt{5})}$$

$$\lim_{x \rightarrow 0} \frac{1}{\sqrt{x+5} + \sqrt{5}}$$

$$= \frac{1}{2\sqrt{5}}$$

$\frac{\sqrt{5}}{10}$ fat answer

Ex:

$$\lim_{x \rightarrow 2} \frac{2-x}{x^2-4}$$

$$\lim_{x \rightarrow 2} \frac{-1(-2+x)}{(x+2)(x-2)}$$

~~$\frac{0}{0}$~~

$$\lim_{x \rightarrow 2} \frac{-1}{x+2}$$

$$\cdot$$

$$\lim_{x \rightarrow 2} 1$$

$$\frac{-1}{4}$$

\cdot

$$1$$

$$\frac{-1}{4}$$