Intro. Estadística Computacional – Germán Miranda
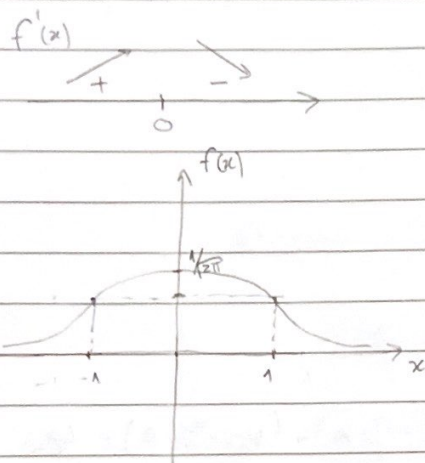
Práctico 0

Ejercicio 1-

Parte a-

$$f(x) = \frac{1}{\sqrt{2\pi}} e^{1/2 x^2}, \quad f'(x) = \frac{1}{\sqrt{2\pi}} \cdot -x \cdot e^{-1/2 x^2} = 0 \text{ sii } x=0$$

$$f'(1) = \frac{-e^{-1/2}}{\sqrt{2\pi}} < 0, \quad f'(-1) = \frac{e^{-1/2}}{\sqrt{2\pi}} > 0$$

$f'(x)$

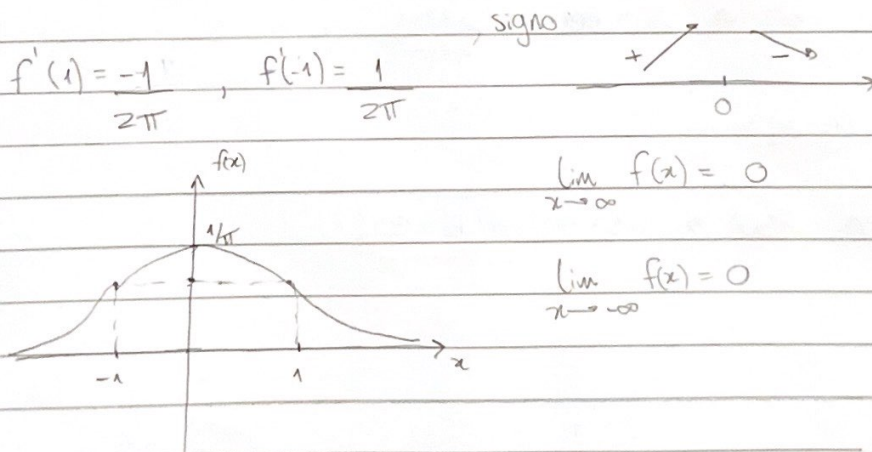$$\lim_{x \to +\infty} f(x) = 0$$

$$\lim_{x \to -\infty} f(x) = 0$$

Ejercicio 2-

Parte a-

$$f(x|\mu) = \frac{1}{\pi} \cdot \frac{1}{1+(x-\mu)^2}, \quad \text{para } \mu=0, \quad f(x) = \frac{1}{\pi} \cdot \frac{1}{1+x^2}$$

$$f'(x) \Rightarrow \frac{1}{\pi}(x^2+1)^{-1} \Rightarrow \frac{1}{\pi} -(x^2+1)^{-2} \cdot 2x = \frac{-1}{\pi} \cdot \frac{2x}{(x^2+1)^2}$$

$$f'(0) = 0$$

$$f'(1) = \frac{-1}{2\pi}, \quad f'(-1) = \frac{1}{2\pi}$$

signo

$$\lim_{x \to \infty} f(x) = 0$$

$$\lim_{x \to -\infty} f(x) = 0$$

Ejercicio 4-

Parte a.

3 de 3 - Fernández Maia

Práctico 0

$$3 \cdot A + 2C = 360$$
$$4A + B + C = 480$$
$$6B + 5C = 450$$

Podemos resolver el sistema despejando las incógnitas y sustituyendo.

3ra eq- $6B = 450 - 5C \Rightarrow B = \dfrac{450 - 5C}{6}$

Sustituyo en 2da eq- $4A + \left(\dfrac{450 - 5C}{6}\right) + C = 480$ ①

1ra eq- $2C = 360 - 3A \Rightarrow C = 180 - \dfrac{3}{2}A$ ②

Sustituyo ② en ① $\Rightarrow 4A + 75 - \dfrac{5}{6}\left(180 - \dfrac{3}{2}A\right) + \left(180 - \dfrac{3}{2}A\right) = 480$

Despejo A $\Rightarrow 4A + \dfrac{15}{12}A - \dfrac{3}{2}A + 255 - 150 = 480$

$$A\left(\dfrac{48 + 15 - 18}{12}\right) = 375$$

$$\boxed{A = \dfrac{375 \cdot 12}{45} = 100}$$

Sustituyo A en 1er eq-

$$300 + 2C = 360 \Rightarrow 2C = 60 \Rightarrow \boxed{C = 30}$$

Sustituyo C en 3ra eq-

$$6B + 150 = 450 \Rightarrow 6B = 300 \Rightarrow \boxed{B = 50}$$