

Exercício 17/09

JOÃO OFÁVIO TANAKA DE OLIVEIRA

- 10772842

$$1) f(x) \approx f(\bar{x}) + \left. \frac{df}{dx} \right|_{x=\bar{x}} (x - \bar{x})$$

$$f(x) = \cos(\bar{x}) - \sin \bar{x} (x - \bar{x})$$

$$a) \bar{x} = 0$$

$$f(0) = \cos(0) - \sin 0 (x - 0) = 1$$

$$b) \bar{x} = \frac{\pi}{4}$$

$$f(\pi/4) = \cos\left(\frac{\pi}{4}\right) - \sin \frac{\pi}{4} (x - \frac{\pi}{4}) = \frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} (x - \frac{\pi}{4})$$

$$\therefore f(\pi/4) = \frac{\sqrt{2}}{2} \left(1 + \frac{\pi}{4} - x \right)$$