

Límite por L'Hopital

Solución

$$\lim_{x \rightarrow 0} \frac{\sin x - x}{x^3} = \frac{\sin(0) - 0}{0^3} = \frac{0 - 0}{0} = \frac{0}{0}$$

$$\lim_{x \rightarrow 0} \frac{\cos(x) - 1}{3x^2} = \frac{\cos(0) - 1}{3 \cdot 0^2}$$

$$= \frac{1 - 1}{0} = \frac{0}{0}$$

$$\lim_{x \rightarrow 0} \frac{-\sin(x) - 0}{3(2)x'} = \frac{-\sin(x)}{6x}$$

$$= \frac{-\sin(0)}{6(0)} = \frac{0}{0}$$

$$\lim_{x \rightarrow 0} \frac{-\cos(x)}{6(1)x^0} = \frac{-\cos(x)}{6}$$

$$= \frac{-\cos(0)}{6} = \frac{-1}{6} = -\frac{1}{6}$$

$$\sin(0) = 0$$

$$\frac{d}{dx} \sin(x) = \cos(x)$$

$$\frac{d}{dx} x^n = nx^{n-1}$$

$$\frac{d}{dx} \cos(x) = -\sin(x)$$

$$\frac{d}{dx} C = 0$$

$$\cos(0) = 1$$