

EJERCICIO M2B53472:

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$$\lim_{x \rightarrow 0} \frac{e^x - x - \cos x}{\sin^2(x)} =$$

→ INDETERMINACIÓN

$$= \frac{e^0 - 0 - \cos 0}{\sin 0} = \left(\frac{0}{0}\right) = (\text{L'Hopital})$$

$$= \lim_{x \rightarrow 0} \frac{e^x - 1 + \sin x}{2 \cdot \sin x \cdot \cos x} = \frac{e^0 - 1 + 0}{2 \cdot \sin 0 \cdot \cos 0} =$$

$$= \left(\frac{0}{0}\right) \stackrel{\text{L'H}}{=} \lim_{x \rightarrow 0} \frac{e^x + \cos x}{2(\cos \cdot \cos x + \sin x \cdot (-\sin x))} =$$

$$= \lim_{x \rightarrow 0} \frac{e^x + \cos x}{2(\cos^2 x - \sin^2 x)} = \frac{e^0 + \cos 0}{2(\cos^2 0 - \sin^2 0)} =$$

$$= \frac{1+1}{2(1-0)} = \frac{2}{2} = \boxed{1}$$