

Partial Differentiation
Limits

Question

Evaluate the given limit. If the limit does not exist, explain why.

$$\lim_{(x,y) \rightarrow (1,\pi)} \frac{\cos(xy)}{1-x-\cos y}$$

Answer

$$\begin{aligned} \lim_{(x,y) \rightarrow (1,\pi)} \frac{\cos(xy)}{1-x-\cos y} \\ = \frac{\cos(\pi)}{1-1-\cos(\pi)} = -1 \end{aligned}$$