

Answer on Question#41047 – Math – Other

$\lim_{x \rightarrow 0} (e^{\tan x} - e^x) / (\tan x - x)$ x tends to 0

Solution:

$$\begin{aligned} \lim_{x \rightarrow 0} \frac{e^{\tan x} - e^x}{\tan x - x} &= \left[\frac{0}{0} \right] = [e^{\tan x} - 1 \sim \tan x, x \rightarrow 0; e^x - 1 \sim x, x \rightarrow 0] = \\ &= \lim_{x \rightarrow 0} \frac{\tan x + 1 - (x + 1)}{\tan x - x} = \lim_{x \rightarrow 0} \frac{\tan x - x}{\tan x - x} = 1 \end{aligned}$$

Answer: 1.