

3-b) Evaluate $\lim_{x \rightarrow 0} \frac{\sqrt{x} \tan x}{(e^x - 1)^{3/2}}$

Solⁿ- $\lim_{x \rightarrow 0} \frac{\sqrt{x} \tan x}{(e^x - 1)^{3/2}}$

$$= \lim_{x \rightarrow 0} \frac{\sqrt{x} \tan x \times x}{\frac{(e^x - 1)^{3/2} \times x^{3/2}}{x^{3/2}}}$$

Double Tap to Edit

$\left[\because \lim_{x \rightarrow 0} \frac{\tan x}{x} = 1 \right]$
and $\lim_{x \rightarrow 0} \frac{e^x - 1}{x} = 1$

$$= \lim_{x \rightarrow 0} \frac{x^{3/2}}{x^{3/2}} = 1$$