

Exercise 46

Find the limit.

$$\lim_{x \rightarrow 0} \csc x \sin(\sin x)$$

Solution

Rewrite the limit in terms of one that is known.

$$\lim_{x \rightarrow 0} \csc x \sin(\sin x) = \lim_{x \rightarrow 0} \frac{\sin(\sin x)}{(\sin x)} = \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = 1$$