Quiz 5 (Dr. AL-Homidan)(161)

Name:- ID:-

Q1. Find the limit if exist $\lim_{x\to 0}\cos\left(\frac{\pi x}{\sin x}\right)$.

$\cos \lim_{x\to 0} \frac{\pi x}{\sin x} = \cos \lim_{x\to 0} \pi \left(\frac{x}{\sin x}\right) = \cos \lim_{x\to 0} \pi$

$= \cos \pi = -1$

L. Hopital

Also $\cos \lim_{x\to 0} \frac{\pi}{-\cos x} = \cos \frac{\pi}{1} = -1$

Q2. Find the limit if exist $\lim_{x\to 1}\left(\frac{x}{\ln x} - \frac{1}{x \ln x}\right)$.

$\lim_{x\to 1} \frac{x^2-1}{x \ln x}$ ($\frac{0}{0}$) L. Hopital

$= \lim_{x\to 1} \frac{2x}{\ln x + 1}$ ($\frac{2}{1}$) $= \lim_{x\to 1} \frac{2}{\frac{1}{x}} = 2$