

SWOT INSTITUTE
LIMITS AND DERIVATIVES
XI-TEST

Time : 1 hr.

1. Evaluate :

$$(i) \lim_{x \rightarrow 1} \frac{x^{15} - 1}{x^{10} - 1}$$

$$(ii) \lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x}$$

2. Evaluate : (i) $\lim_{x \rightarrow 0} \frac{\sin 4x}{\sin 2x}$

$$(ii) \lim_{x \rightarrow 0} \frac{\tan x}{x}$$

3. $\lim_{x \rightarrow 0} (\operatorname{cosec} x - \cot x)$

$$4. \lim_{x \rightarrow \frac{\pi}{2}} \frac{\tan 2x}{x - \frac{\pi}{2}}$$

5. Find the derivative of $\cos x$ from first principle.

6. Find the derivative : $2x - \frac{3}{4}$.

7. Find the derivative of :
 $\sec x$.