

Holidays Home work

Subject - maths

Class - XI

A. Do the following Questions in H.W copy

1) Evaluate  $\lim_{x \rightarrow 0} \frac{\sin(2+x) - \sin(2-x)}{x}$

2) Evaluate  $\lim_{x \rightarrow 0} \frac{\sqrt{4+2x} - \sqrt{3x}}{\sqrt{3x+1} - 2\sqrt{x}}$

3) Evaluate  $\lim_{x \rightarrow \frac{\pi}{2}} \frac{2\sin^2 x + \sin x - 1}{2\sin^2 x - 3\sin x + 1}$

4) Find the derivative of  $f(x) = \sqrt{\sin x}$ , by first principle method.

5) Show that  $\lim_{x \rightarrow 4} \frac{|x-4|}{x-4}$  does not exist.

6)  $\lim_{x \rightarrow 0} \frac{1 - \cos 2x}{x^2}$

7)  $\lim_{x \rightarrow \frac{\pi}{6}} \frac{\tan^3 x - \tan x}{\cos(x + \frac{\pi}{4})}$

8)  $\lim_{x \rightarrow \pi} \frac{1 - \sin \frac{x}{2}}{\cos \frac{x}{2} (\cos \frac{x}{4} - \sin \frac{x}{4})}$

9)  $\lim_{x \rightarrow 0} \frac{\sqrt{2} - \sqrt{1 + \cos x}}{\sin x}$

10) Let  $f(x) = \begin{cases} k \cos x, & \text{when } x \neq \frac{\pi}{2} \\ 3, & x = \frac{\pi}{2} \end{cases}$

and if  $\lim_{x \rightarrow \frac{\pi}{2}} f(x) = f(\frac{\pi}{2})$

then find the value of k.

Do revise periodic test - II Syllabus  
thoroughly from ncert and all solved  
Examples & Examples of ncert Exemplar.

Syllabus for PT-II ch IX to XII  
ch XIII (only Derivatives  
ex 13.2 + Mis ex.)

Also Do Some Imp. Questions

- ① Find the co-ordinates of the foot of the perpendicular from the point  $(-1, 3)$  to the line  $3x - 4y - 16 = 0$
- ② Find the angle between the lines  
 $y - \sqrt{3}x - 5 = 0$   
and  $\sqrt{3}y - x + 6 = 0$
- ③ Reduce the equation  $\sqrt{3}x + y - 8 = 0$  into normal form, find the values of  $P$  and  $\omega$ .
- ④ Find the equation of the hyperbola if coordinates of its foci are  $(\pm 4, 0)$  and length of latus rectum is 12.
- ⑤ An arc is in the form of a parabola with its axis vertical the arch is 10m high and 5m wide at the base. How wide is it 2m from the vertex of the parabola.
- ⑥ Find the equation of the ellipse with major axis along the  $x$  axis and passing through the points  $(4, 3)$  and  $(-1, 4)$ .
- ⑦ Find the Equation of the circle which passes through the points  $(2, -2)$  and  $(3, 4)$  and whose centre lies on the line  $x + y = 2$