

# Centum Preparation 100 Days plan class 12 Maths

Q.N o.	DAY - 50
308	<p>5. Find the tangent and normal to the following curves at the given points on the curve.</p> <p>(ii) <math>y = x^4 + 2e^x</math> at <math>(0, 2)</math>      (iv) <math>x = \cos t, y = 2 \sin^2 t</math> at <math>t = \frac{\pi}{3}</math></p>
309	<p>6. Find the equations of the tangents to the curve <math>y = 1 + x^3</math> for which the tangent is orthogonal with the line <math>x + 12y = 12</math>.</p>
310	<p>8. Find the equation of tangent and normal to the curve given by <math>x = 7 \cos t</math> and <math>y = 2 \sin t, t \in \mathbb{R}</math> at any point on the curve.</p>
311	<p>10. Show that the two curves <math>x^2 - y^2 = r^2</math> and <math>xy = c^2</math> where <math>c, r</math> are constants, cut orthogonally.</p>
312	<p><b>Example 7.36</b></p> <p>Evaluate the limit <math>\lim_{x \rightarrow 0} \left( \frac{\sin x}{x^2} \right)</math>.</p>
313	<p><b>Example 7.37</b></p> <p>If <math>\lim_{\theta \rightarrow 0} \left( \frac{1 - \cos m\theta}{1 - \cos n\theta} \right) = 1</math>, then prove that <math>m = \pm n</math>.</p>
314	<p><b>Example 7.38</b></p> <p>Evaluate : <math>\lim_{x \rightarrow 1^-} \left( \frac{\log(1-x)}{\cot(\pi x)} \right)</math>.</p>