



MATHS

FOR IIT JEE ASPIRANTS OF CLASS 12

FOR MATHS

LIMITS AND DERIVATIVES

Others

1. Solve $y = \tan^{-1} \left(\frac{\sqrt{1+x^2} - 1}{x} \right)$



 [Watch Video Solution](#)

2. Find $\frac{dy}{dx}$ if $x = a(\theta - \sin \theta)$ and $y = a(1 - \cos \theta)$.



[Watch Video Solution](#)

3. Differentiate $\tan^{-1} \left(\frac{\sqrt{1+x^2} - 1}{x} \right)$ w.r.t. $\tan^{-1} x$



[Watch Video Solution](#)

4. If $e^y(x + 1) = 1$. Show that

$$\frac{d^2y}{dx^2} = \left(\frac{dy}{dx} \right)^2$$



[Watch Video Solution](#)

5. If $y = (\tan^{-1} x)^2$, show that

$$(x^2 + 1)^2 y_2 + 2x(x^2 + 1) y_1 = 2 .$$



[Watch Video Solution](#)

6. If $\cos y = x \cos(a + y)$, with $\cos a \neq \pm 1$,

prove that $\frac{dy}{dx} = \frac{\cos^2(a + y)}{\sin a}$.



Watch Video Solution