

Test 1

1) Choose the correct answer:-

(i) If $y = e^{-\ln(\sin x)}$, then y' is:

a) $\frac{\sin x}{\cos^2 x}$

b) $-\frac{\cos x}{\sin^2 x}$

c) $\frac{\cos x}{\sin^2 x}$

d) None

(ii) If $y = \tanh^{-1} \frac{e^x}{4}$, then y' is:

a) $\frac{4e^x}{16 - e^{2x}}$

b) $\frac{e^x}{16 - e^{2x}}$

c) $\frac{4e^x}{16 + e^{2x}}$

d) None

2) Evaluate the integral $\int \frac{e^x}{\sqrt{e^{2x} + 1}} dx$

3) Prove that $\tanh^{-1} x = \frac{1}{2} \ln \left(\frac{1+x}{1-x} \right)$

4) Find $\frac{dy}{dx}$, if $y = x^{2x} + e^{2x} + 5^{2x}$