

1. Differentiate $y = (x^2 - 5)^5$ A. $2x(x^2 - 5)^4$ B. $10(x^2 - 5)^4$ C. $10x(5 - x^2)^4$ D. $10x(x^2 - 5)^4$
2. Find the differential coefficient $x^3 \sin 2x$
A. $3x \cos 2x$ B. $3x^2 \sin 2x + x$ C. $2x^4 \cos x + \sin 2x$ D. $2x^4 \cos 2x + 3x^2 \sin 2x$
3. If $y = \ln(x + \sin x)$, find $\frac{dy}{dx}$. A. $\frac{1 + \cos x}{2x + \sin x}$ B. $\frac{1 + \cos x}{x + 2 \sin x}$ C. $\frac{1 + 2 \cos x}{x + \sin x}$ D. $\frac{1 + \cos x}{x + \sin x}$
4. Solve $\int_0^{\pi} \sin^2 \theta d\theta$. A. $\frac{3\pi}{2}$ B. $\frac{\pi}{3}$ C. $\frac{5\pi}{2}$ D. $\frac{\pi}{2}$
5. Find the limit of the function $f(x) = 3x/(x+1)$ as $x \rightarrow \infty$ A. 3 B. 5 C. 13 D. ∞
6. Using the limiting process as n tends to zero solve $\frac{2^{n+1} + 1}{2^{n+1}}$. A. $\frac{3}{2}$ B. $\frac{1}{2}$ C. 0 D. ∞
7. Find the derivative of the function $f(x) = \cos(e^{-x})$ Download More On Stechitegist.com
A. $\cos(e^{-x})$ B. $-e^{-x} \cos(e^{-x})$ C. $e^{-x} \cos(e^{-x})$ D. $e^{-x} \sin(e^{-x})$
8. Find $y''(0)$ where $y = 4x^4 + 2x^3 + 3$ A. 12 B. 0 C. 96 D. 48
9. Find the stationary values of the function $Z = 2x^3 - 12xy + 2y^3$. A. -16 B. 16 C. 24 D. -24
10. Evaluate $\int x \sin x dx$
A. $x \cos x + \sin x + c$ B. $-x \cos x + \sin x + c$ C. $x \cos x - \sin x + c$ D. $x \cos x - \sin x + c$
11. If $y = \sin x$, find y'' . A. y B. $\cos x$ C. $-y$ D. $-\cos x$
12. If $y = \tan \theta$, evaluate y'' . A. $\cos \theta$ B. $\sin \theta$ C. $2y(1 - y^2)$ D. $2y(1 + y^2)$
13. Determine $\int 2x dx$. A. $3x^2 + c$ B. $x^3 + c$ C. $2x^2 + c$ D. $x^2 + c$
14. Determine $\int \frac{3}{5x} dx$. A. $\frac{2}{5} \ln x + c$ B. $\frac{3}{5} \ln x + c$ C. $\frac{3}{15} \ln x + c$ D. $\frac{3}{7} \ln x + c$
15. Find the $\lim_{x \rightarrow 0} \frac{e^x - 1}{x}$. A. 11 B. $\frac{1}{2}$ C. 1 D. 0