

BCM SCHOOL, BASANT AVENUE, DUGRI ROAD, LUDHIANA
Class XII
Mathematics
Revision Assignment

1. $\int_0^{\frac{\pi}{2}} \frac{\sqrt{\sin x}}{\sqrt{\sin x} + \sqrt{\cos x}} dx = \dots$
 (a) $\pi/2$ (b) $\pi/3$ (c) $\pi/4$ (d) π
2. $\int_{-1}^1 \log\left(\frac{2+x}{2-x}\right) dx = \dots$
 (a) e (b) 0 (c) 1 (d) 2
3. $\int_{-\pi/2}^{\pi/2} x^{2022} \sin^{-1} x \, dx = \dots$
 (a) $2022/2021$ (b) $2021/2022$ (c) 1 (d) 0
4. **Assertion** : $\int_{-2}^2 \log\left(\frac{1+x}{1-x}\right) dx = 0$
Reason : If f is an odd function, then $\int_{-a}^a f(x) \, dx = 0$
5. Evaluate: $\int \frac{(5x + 3) \, dx}{\sqrt{x^2 + 4x + 10}}$
6. Evaluate $\int e^x \frac{(x^2 + 1)}{(x + 1)^2} dx$
7. Evaluate: $I = \int \frac{dx}{x(x^8 + 1)}$
8. Evaluate: $\int_0^{\pi} \frac{x \tan x}{\sec x + \tan x} dx$
9. Evaluate: $I = \int_{-2}^2 \frac{x^2}{1 + 5^x} dx$
10. Evaluate: $\int_0^{\frac{\pi}{2}} \frac{x + \sin x}{1 + \cos x} dx$