

INDIAN SCHOOL MUSCAT

DEPARTMENT OF MATHEMATICS

CLASS XII - WORKSHEET ON INDEFINITE INTEGRATION

Evaluate the following integrals:

1. $\int (e^{u \log x} + e^{x \log u}) dx$

2. $\int \tan x \tan 2x \tan 3x dx$

3. $\int \sqrt{\sin x} \cos^3 x dx$

4. $\int (3 \tan x + 4 \cot x)^2 dx$

5. $\int \frac{1}{\sin(x-\alpha) \cos(x-\beta)} dx$

6. $\int \frac{1}{1+3e^x+2e^{2x}} dx$

7. $\int \left(\frac{2 + \sin 2x}{1 + \cos 2x} \right) e^x dx$

8. $\int \frac{\sqrt{1 + \cos x}}{(1 - \cos x)^{5/2}} dx$

9. $\int e^{\tan^{-1} x} \left(\frac{1+x+x^2}{1+x^2} \right) dx$

10. $\int \frac{\cos x}{\cos 3x} dx$

11. $\int \frac{\sin x}{\sin 4x} dx$

12. $\int \operatorname{Co} \sec^3 x dx$

13. $\int \frac{1}{1 + \sin x + \cos x} dx$

14. $\int \left(\frac{1}{\sin^4 x + \cos^4 x} \right) dx$

15. $\int \frac{(x-1)^2}{x^4 + x^2 + 1} dx$

16. $\int \frac{1}{(\sin x - 2 \cos x)(2 \sin x + \cos x)} dx$

17. $\int \frac{2x+3}{\sqrt{x^2+4x+5}} dx$

18. $\int \sin^6 x \cos^5 x dx$

19. $\int \frac{2 \sin 2\phi \cos \phi}{6 - \cos^2 \phi - 4 \sin \phi} d\phi$

20. $\int \frac{\sin 2x + 3 \cos x}{(\sin^2 x + 3 \sin x + 5)^4} dx$

21. $\int \frac{(3 \sin x - 2) \cos x}{5 - \cos^2 x - 4 \sin x} dx$

22. $\int \frac{4e^x + 6e^{-x}}{9e^x - 4e^{-x}} dx$

23. $\int (x+1) \sqrt{1-x-x^2} dx$

24. $\int \frac{6x+5}{\sqrt{6+x-2x^2}} dx$