

Integration 2

1. Find:

(i) $\int (1 - \sqrt{x}) dx$ (ii) $\int_{\frac{\pi}{6}}^{\frac{\pi}{2}} \sqrt{3} \sin x dx$ (iii) $\int_0^{\frac{\pi}{4}} -\cos 2x dx$ (iv) $\int 6e^{3x+5} dx$
(v) $\int x\sqrt{4-2x^2} dx$ (vi) $\int x \cos x dx$

2. Evaluate $\int \sin^2 x \cos^2 x dx$.

3. Evaluate $\int x^2 \cos^{-1} x dx$.

4. Find by integration by parts $\int x^3 e^{-x^2} dx$.

5. Evaluate $\int_0^{\pi} \frac{d\theta}{a^2 - 2ab \cos \theta + b^2}$

6. Evaluate $\int \cos 2x \cot 2x dx$

7. Evaluate $\int \frac{\ln x}{x^5} dx$

8. Evaluate $\int (3t + t^2) \sin(2t) dt$.

9. Evaluate $\int x^3 \ln x dx$.

10. Evaluate $\int t^2 \ln(1 + t^3) dt$.