

1. $\int \frac{\sqrt{x^2 - 9}}{x^3} dx$
2. $\int \frac{1}{\sqrt{x} - \sqrt[3]{x}} dx$ [Hint : Let $u = \sqrt[6]{x}$]
3. Find the Maclaurin series for $f(x) = \sin^2 x$.
4. $\int x^3 \sqrt{x^2 + 4} dx$
5. $\int \frac{2x^2 - x + 4}{x^3 + 4x} dx$
6. $\int_0^3 \frac{1}{x - 1} dx$
7. Find **R** and **I** for $\sum_{n=2}^{\infty} \frac{(-1)^n x^n}{4^n \ln n}$
8. Evaluate as a power series: $\int \frac{\ln(1 - t)}{t} dt$
9. If $f(x) = e^{x^2}$, find $T_5(x)$.
10. $\int \ln x dx$
11. Find **I** for $\sum_{n=1}^{\infty} \frac{(x - 3)^n}{n}$
12. Find the Maclaurin series for $f(x) = \cos \sqrt{x}$
13. $\int_0^1 x 5^x dx$
14. Find **I** for $\sum_{n=1}^{\infty} (-1)^n \frac{x^{2n}}{(2n)!}$