

(1) Evaluate the following integrals.

- (i) $\int \sqrt{1+x^2} x^5 dx$
- (ii) $\int \frac{\sin \sqrt{x}}{\sqrt{x}} dx$
- (iii) $\int \frac{(\ln x)^2}{x} dx$
- (iv) $\int e^x \sqrt{1+e^x} dx$
- (v) $\int (x^2+1)(x^3+3x)^4 dx$
- (vi) $\int x(2x+5)^8 dx$
- (vii) $\int \frac{1}{x-3} dx$
- (viii) $\int \frac{x}{x^2-3} dx$
- (ix) $\int \tan x dx$
- (x) $\int \frac{x+1}{x^2+2x+1} dx$
- (xi) $\int \frac{\sin 2x}{1+\cos^2 x} dx$
- (xii) $\int \cot x dx$
- (xiii) $\int \frac{dx}{\sqrt{1-x^2} \sin^{-1} x}$
- (xiv) $\int \frac{\cos(\ln t)}{t} dt$
- (xv) $\int x^3 \sqrt{x^2+1} dx$
- (xvi) $\int 5^t \sin(5^t) dt$
- (xvii) $\int \cos^3 \theta \sin \theta d\theta$
- (xviii) $\int_0^4 \sqrt{2x+1} dx$
- (xix) $\int_1^2 \frac{dx}{(3-5x)^2}$
- (xx) $\int_1^e \frac{\ln x}{x} dx$
- (xxi) $\int_0^4 \frac{x}{\sqrt{1+2x}} dx$
- (xxii) $\int_0^2 (x-1)e^{(x-1)^2} dx$