

Assignment 9,

MA1123

Evaluate

(a) $\int x \cos x \, dx$

(i) $\int \frac{dx}{x\sqrt{1+x}}$

(b) (i) $\int \frac{dx}{x^2-7x-8}$

(ii) $\int \frac{dx}{x^2+4x+5}$

(c) $\int \frac{x^2+1}{x^2-3x+2} \, dx$

(d) $\int \frac{x^3+x^2+x+2}{(x^2+1)(x^2+2)} \, dx$

(e) $\int \frac{x+1}{(1-x^2)^2} \, dx$

(f) $\int \frac{dx}{x^2 \sqrt{x^2+25}}$

(g) $\int \frac{dx}{x^2 \sqrt{x^2-4}}$

(h) $\int \tan x \sec^{3/2} x \, dx$

(i) $\int \sin^7 3x \cos 3x \, dx$

(j) $\int x \sec^2 x \, dx$

2. Prove the Reduction Formula

$$\int \tan^n x \, dx = \frac{\tan^{n-1} x}{n-1} - \int \tan^{n-2} x \, dx.$$