

1. Evaluate the integrals.

(a)  $\int \frac{4x - 1}{(x - 1)(x + 2)} dx$

(b)  $\int \frac{1}{(x + a)(x + b)} dx$

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

(d)  $\int t^2 \ln t dt$

(e)  $\int_0^2 x^3 \sqrt{4 - x^2} dx$

(f)  $\int \sqrt{x^2 + 1} dx$

(g)  $\int_0^1 \frac{\sqrt{t}}{t + 1} dt$

(h)  $\int \frac{x}{\sqrt{1 - x}} dx$

(i)  $\int_0^3 \frac{dx}{9 + x^2}$

(j)  $\int_0^\pi \sin^5 \frac{x}{2} dx$

(k)  $\int_0^{\pi/2} 7 \cos^7 t dt$

(l)  $\int_0^\pi 8 \sin^4 y \cos^2 y dy$

(m)  $\int \frac{dx}{x\sqrt{x^2 + 3}}$