

1. Use Partial Fraction Decomposition to compute the following integrals.

(a) $\int \frac{2x - 1}{x^2 + 2x - 15} dx$

(c) $\int \frac{x^3 + 2x^2 + 4x - 12}{x^4 + 4x^2} dx$

(b) $\int \frac{\cos \theta}{\sin^2 \theta + 8 \sin \theta + 15} d\theta$

(d) $\int \frac{x^5 + 1}{x^2 + 1} dx$

(e) $\int \frac{3x^2 - 12x + 5}{x^2 - 6x + 8} dx$

(f) $\int \frac{1}{x^2 + 8x + 16} dx$

2. Compute the following integrals. Use methods from sections 8.1 through 8.4.

(a) $\int \sin^3 \alpha \cos^4 \alpha \, d\alpha$

(b) $\int e^{2x} \sin(x) \, dx$

(c) $\int \tan^5 x \, dx$

(e) $\int \frac{1}{(9 - 4t^2)^{3/2}} \, dt$

(d) $\int \sin^{-1} x \, dx$

(f) $\int \frac{1}{x(9 + x^2)^2} \, dx$