

Key Concepts

Indefinite Integral

- Begin by finding the antiderivative of the given function
- then write a plus C for the unknown constant

$$\int x dx = \frac{x^2}{2} + C$$

Definite Integrals

- Similar process as indefinite except you are given boundaries
- $\int_a^b \cos(x) dx = \sin(b) - \sin(a)$

Problem 1

Direction Evaluate the following indefinite integrals:

(a)

$$\int x^2 + x^5 dx$$

(b)

$$\int e dx$$

(c)

$$\int 3x^2 + \sin(x) dx$$

(d)

$$\int \sec(z) \tan(z) + \csc^2(z) dz$$

Problem 2

Directions Evaluate the following definite integrals

(a)

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \csc^2(x) \cot(x) dx$$

(b)

$$\int_0^4 (x^3 - 3x + 1) dx$$

(c)

$$\int_0^{2\pi} (x - \cos(x)) dx$$

(d)

$$\int_{-2}^2 (x^2 - 2x + 1) dx$$