

Section 2: Area under a curve

Exercise level 1

1. Find the following indefinite integrals.

(i) $\int 4x^3 dx$

(ii) $\int (x^3 - 3x^2) dx$

(iii) $\int (10x^4 + 3x^2 + 4) dx$

(iv) $\int (3x - 1)^2 dx$

(v) $\int x(3x - 4) dx$

2. Evaluate the following definite integrals.

(i) $\int_{-1}^1 (4x + 5) dx$

(ii) $\int_{-1}^0 (6x^2 - 2x) dx$

(iii) $\int_2^4 (x^2 - x + 3) dx$

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

(v) $\int_{-1}^2 (x^3 - x + 4) dx$

3. Find the areas enclosed by the x axis and the following curves.

(i) $y = (1 - x)(x + 2)$

(ii) $y = 3x^2 - x^3$