

13.4) Definite integrals

Worked example

Evaluate:

$$\int_1^4 2x \, dx$$

Your turn

Evaluate:

$$\int_1^2 3x^2 \, dx$$

7

Worked example

Evaluate:

$$\int_2^4 5x^4 dx$$

Your turn

Evaluate:

$$\int_1^5 4x^3 dx$$

624

Worked example

Evaluate:

$$\int_0^2 \left(x^{\frac{1}{4}} - 3\right)^2 dx$$

Your turn

Evaluate:

$$\int_0^1 \left(x^{\frac{1}{3}} - 1\right)^2 dx$$

$$\frac{1}{10}$$

Worked example

Evaluate:

$$\int_{-4}^4 x^3 - 2 \, dx$$

Your turn

Evaluate:

$$\int_{-3}^3 x^2 + 1 \, dx$$

24

Worked example

Given that P is a constant and

$$\int_3^7 (4Px + 7) dx = 108P^2$$

find the possible values of P

Your turn

Given that P is a constant and

$$\int_1^5 (2Px + 7) dx = 4P^2$$

find the possible values of P

$$P = -1, P = 7$$

Worked example

Given that $\int_1^k \frac{1}{\sqrt[4]{x}} dx = \frac{28}{3}$,
calculate the value of k

Your turn

Given that $\int_1^k \frac{1}{\sqrt[3]{x}} dx = \frac{9}{2}$,
calculate the value of k

$$k = 8$$