

Methods of integration



The trapezoidal rule (1)

QUESTION 1 Use one application of the trapezoidal rule to approximate:

a $\int_2^4 \frac{1}{x} dx$

b $\int_0^3 (x^2 - 3)^5 dx$

c $\int_3^4 \sqrt{25 - x^2} dx$

d $\int_1^2 \frac{x}{x+4} dx$

QUESTION 2 Use the trapezoidal rule to approximate, to one decimal place:

a $\int_1^3 \frac{dx}{x+3}$ using 3 function values

b $\int_1^{10} \log_{10} x dx$ using 4 function values



The trapezoidal rule (2)

QUESTION 1 Use the trapezoidal rule to approximate, to one decimal place, $\int_1^2 7(0.2)^x dx$ using 5 function values.

QUESTION 2 Use the trapezoidal rule with the given function values to approximate $\int_0^5 f(x) dx$

x	0	1	2	3	4	5
$f(x)$	1.00	0.60	0.36	0.22	0.13	0.08

QUESTION 3 Use the trapezoidal rule to approximate the area shaded in the diagram.


