

Methods of integration



Simpson's rule (1)

QUESTION 1 Use Simpson's rule with the three given function values to approximate $\int_a^b f(x) dx$

a

x	0	0.5	1
$f(x)$	1	1.65	2.72

b

x	1	2	3
$f(x)$	0	0.7	1.1

QUESTION 2 Use Simpson's rule, with three function values, to approximate to one decimal place:

a $\int_1^2 2^x dx$

b $\int_1^5 \frac{1}{x} dx$

QUESTION 3 Use Simpson's rule, with five function values, to approximate $\int_0^2 \sqrt{x^2 + 4} dx$



Simpson's rule (2)

QUESTION 1 Use Simpson's rule and the table of values to estimate $\int_1^3 f(x) dx$

x	1	1.5	2	2.5	3
$f(x)$	1	0.71	0.5	0.35	0.25

QUESTION 2 Use Simpson's rule with 7 function values to approximate $\int_1^{2.5} 3^{-x} dx$ to two decimal places.

QUESTION 3 The diagram shows a paddock, bounded on one side by a river. Use the given measurements and Simpson's rule to approximate the area of the paddock. Give the answer to the nearest m^2 .


