

CHAPTER 2

Methods of integration



Definite integrals (1)

QUESTION 1 Find the value of:

a $\int_0^2 x^2 dx$

b $\int_1^4 3x^2 dx$

c $\int_2^5 8x dx$

d $\int_2^6 5x^4 dx$

e $\int_{-3}^3 x^3 dx$

f $\int_0^3 \frac{x}{3} dx$

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

h $\int_{-4}^{-3} 7x^6 dx$

i $\int_2^3 -4x^2 dx$

j $\int_2^7 (4x - 5) dx$

k $\int_1^5 (8x^3 - 6x^2 + x) dx$

Definite integrals (2)

QUESTION 1 Evaluate:

a $\int_{-1}^2 (x^2 + 6x + 4) dx$

b $\int_{-1}^1 (8x - 3x^3) dx$

c $\int_1^3 (5x + 2)^2 dx$

d $\int_4^5 (3 - 2x)^4 dx$

e $\int_{-2}^3 (9x - 3)^3 dx$

f $\int_0^1 (4x + 1)^9 dx$

QUESTION 2 Find the exact value of:

a $\int_2^4 x^{-2} dx$

b $\int_1^5 4x^{-5} dx$

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

Methods of integration

Definite integrals (3)

QUESTION 1 Find:

a $\int_0^4 x^{\frac{1}{2}} dx$

b $\int_1^8 2x^{\frac{2}{3}} dx$

c $\int_4^9 6x^{-\frac{1}{2}} dx$

QUESTION 2 Find the exact value of:

a $\int_0^4 \frac{x^3}{2} dx$

b $\int_1^2 7y^6 dy$

c $\int_2^3 (6t^2 - 10t + 3) dt$

d $\int_{-1}^1 \pi r^2 dr$

e $\int_{-2}^{-1} (a^2 + a) da$

f $\int_{-1}^3 (u - 1)^3 du$

Page 34 1 a $2\frac{2}{3}$ b 63 c 84 d 7744 e 0 f $1\frac{1}{2}$ g $11\frac{1}{4}$ h 14 197 i $-25\frac{1}{3}$ j 65 k 1012

36

Page 35 1 a 24 b 0 c $304\frac{2}{3}$ d $1368\frac{1}{5}$ e $3813\frac{3}{4}$ f 244 140 $\frac{3}{5}$ 2 a $\frac{1}{4}$ b $\frac{624}{625}$ c $-\frac{35}{216}$

ISION & EXAM WORKBOOK

Page 36 1 a $5\frac{1}{3}$ b $37\frac{1}{5}$ c 12 2 a 32 b 127 c 16 d $\frac{2\pi}{3}$ e $\frac{5}{6}$ f 0