(1)

a) Use the trapezium rule with 4 equally spaced strips to find an estimate for

$$\int_0^1 2^{\sqrt{x}}\ dx.$$

b) Use the answer of part (a) to find estimates for …

i. … $\int_0^1 2^{\sqrt{x}}+3\ dx.$

ii. … $\int_0^1 2^{\sqrt{x}+3}\ dx.$

P= 31·21
C= 0·678
L= 11·703
T= 5040
A= 3·901
V= 0·312
A= 7153
E= 6·616
T= 9·901
B= 1008
R= 6·901

(2)

a) **Use the trapezium rule** with 4 equally spaced strips to find an estimate for

$$\int_0^{\frac{\pi}{3}} \cos^2 x\ dx.$$

b) **Use the answer of part (a)** to find an estimate for

$$\int_0^{\frac{\pi}{3}} \sin^2 x\ dx.$$

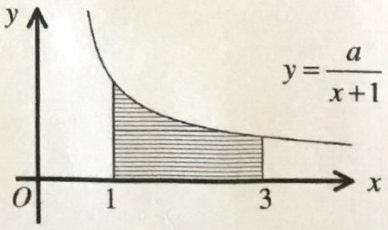
T= 2·122
E= 0·735
O= 1·123
W= 1753
H= 0·121

(3)

The figure above shows part of the curve C with equation

$$y=\frac{a}{x+1},$$

where a is a positive integer.



When the trapezium rule with 5 equally spaced strips is used, the area bounded by C, the x axis and the vertical straight lines with equations $x=1$ and $x=3$, is approximated to 701.2 square units.

a) Determine the value of a.

b) By considering suitable graph transformation, find an approximate value of

$$\int_{0.5}^{1.5} \frac{5a}{2x+1}\ dx.$$