1.

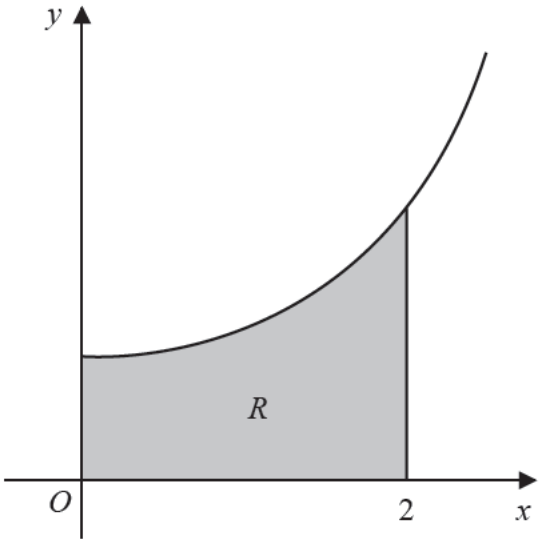

Figure 1

Figure 1 shows part of the curve with equation $y = e^{\frac{1}{5}x^2}$ for $x \geqslant 0$

The finite region R, shown shaded in Figure 1, is bounded by the curve, the y-axis, the x-axis, and the line with equation $x = 2$

The table below shows corresponding values of x and y for $y = e^{\frac{1}{5}x^2}$

x	0	0.5	1	1.5	2
y	1	$e^{0.05}$	$e^{0.2}$	$e^{0.45}$	$e^{0.8}$

(a) Use the trapezium rule, with all the values of y in the table, to find an estimate for the area of R, giving your answer to 2 decimal places.

(3)

(b) Use your answer to part (a) to deduce an estimate for

(i) $\int_0^2 \left(4 + e^{\frac{1}{5}x^2}\right) dx$

(ii) $\int_1^3 e^{\frac{1}{5}(x-1)^2} dx$

giving your answers to 2 decimal places.

(2)