

11.

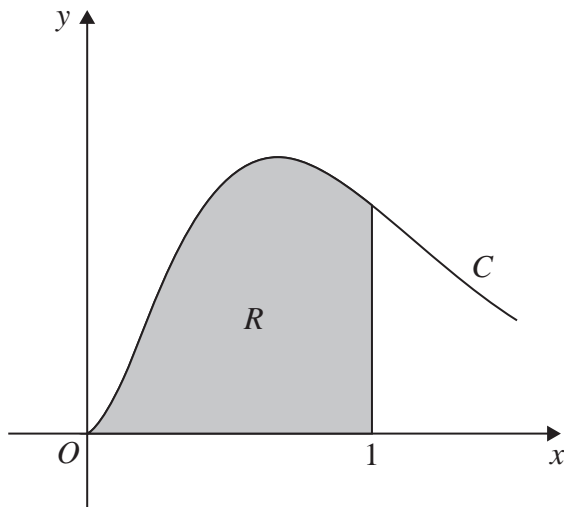


Figure 5

In this question you must show all stages of your working.

Solutions relying entirely on calculator technology are not acceptable.

Figure 5 shows a sketch of part of the curve C with equation

$$y = 8x^2e^{-3x} \quad x \geq 0$$

The finite region R , shown shaded in Figure 5, is bounded by

- the curve C
- the line with equation $x = 1$
- the x -axis

Find the exact area of R , giving your answer in the form

$$A + Be^{-3}$$

where A and B are rational numbers to be found.