2: The line joining the points (–2, 5) and (4, 15) is the diameter of a circle C.

(a) Find an equation for C.

(5)

(b) Hence find the exact coordinates of the point on C that is nearest the x-axis.

(2)

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Question 2 continued

(Total for Question 2 is 7 marks)

3:

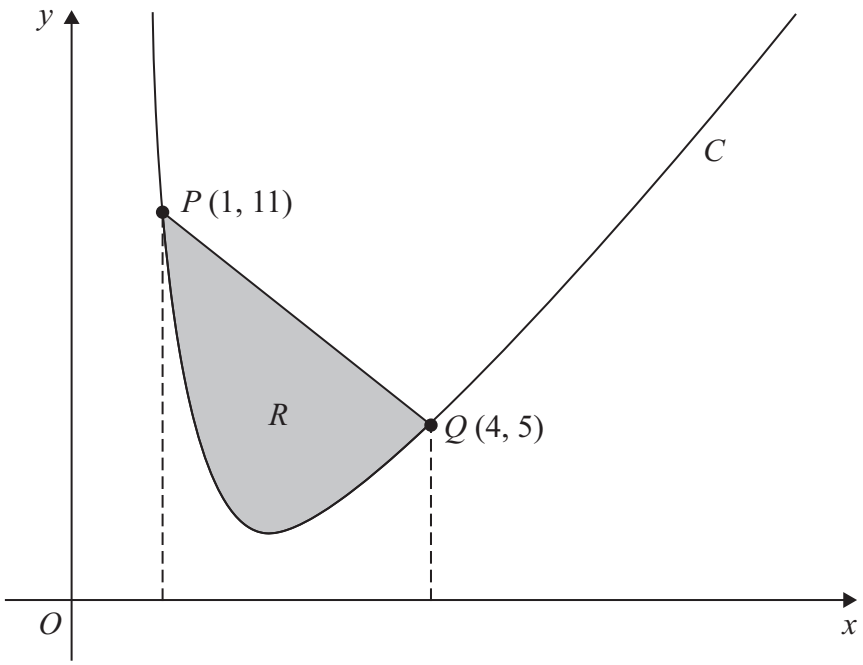


Figure 1

In this question you must show all stages of your working.
Solutions relying entirely on calculator technology are not acceptable.

Figure 1 shows a sketch of the curve C with equation

$$y = 3x + \frac{16}{x^2} - 8 \qquad x > 0$$

The points $P(1, 11)$ and $Q(4, 5)$ lie on C and are shown in Figure 1.

The region R, shown shaded in Figure 1, is bounded by C and line segment PQ.

Use algebraic integration to find the area of R.

(5)

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