**10.**

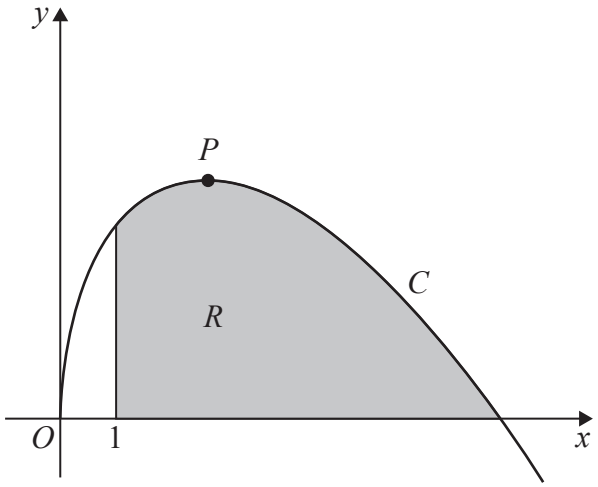



**Figure 1**

**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 part of the curve $C$ with equation

$$y = \frac{9x - x^2}{2\sqrt{x}} \qquad x > 0$$

The point $P$ is the stationary point on $C$.

(a) Find, using calculus, the $x$ coordinate of $P$.

**(4)**

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

(b) Using calculus, calculate the exact area of $R$.

**(5)**

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**Question 10 continued**

**Question 10 continued**

**(Total for Question 10 is 9 marks)**

**TOTAL FOR PAPER IS 75 MARKS**

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