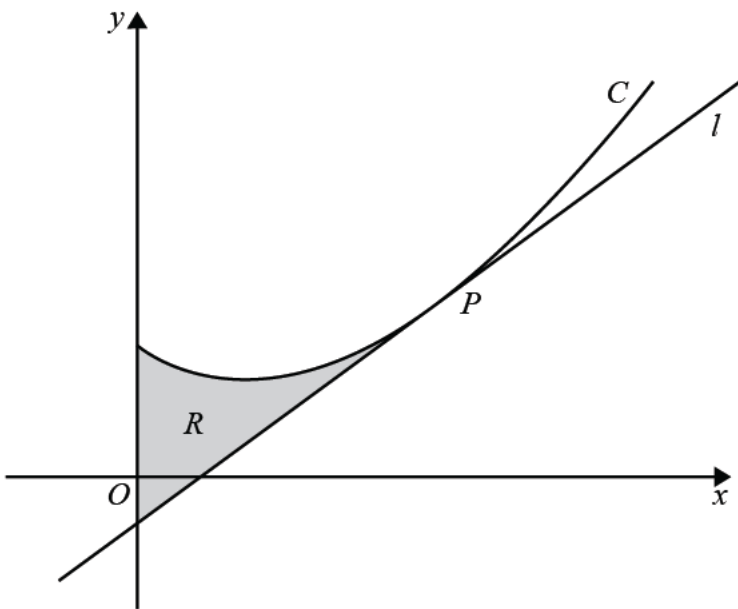


15.



**Figure 4**

Figure 4 shows a sketch of the curve  $C$  with equation

$$y = 5x^{\frac{3}{2}} - 9x + 11, x \geq 0$$

The point  $P$  with coordinates  $(4, 15)$  lies on  $C$ .

The line  $l$  is the tangent to  $C$  at the point  $P$ .

The region  $R$ , shown shaded in Figure 4, is bounded by the curve  $C$ , the line  $l$  and the  $y$ -axis.

Show that the area of  $R$  is 24, making your method clear.

*(Solutions based entirely on graphical or numerical methods are not acceptable.)*