

6.

Figure 1

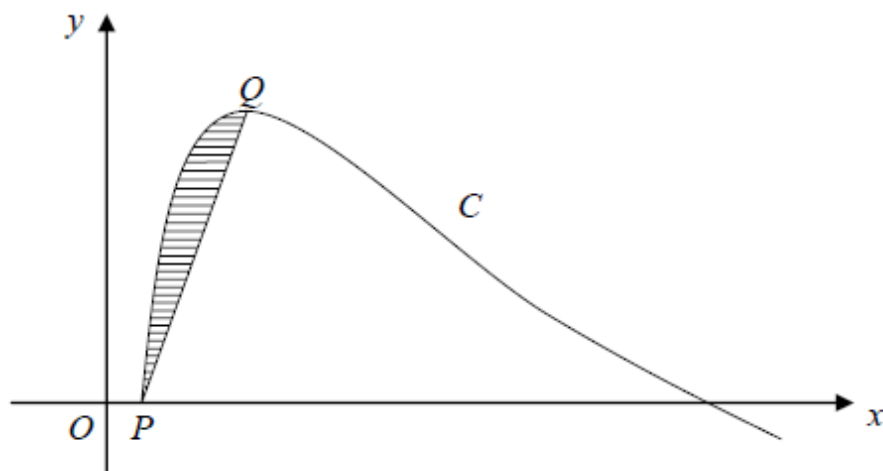


Figure 1 shows a sketch of part of the curve  $C$  with equation

$$y = \sin(\ln x), \quad x \geq 1.$$

The point  $Q$ , on  $C$ , is a maximum.

(a) Show that the point  $P(1, 0)$  lies on  $C$ .

(1)

(b) Find the coordinates of the point  $Q$ .

(5)

(c) Find the area of the shaded region between  $C$  and the line  $PQ$ .

(9)