







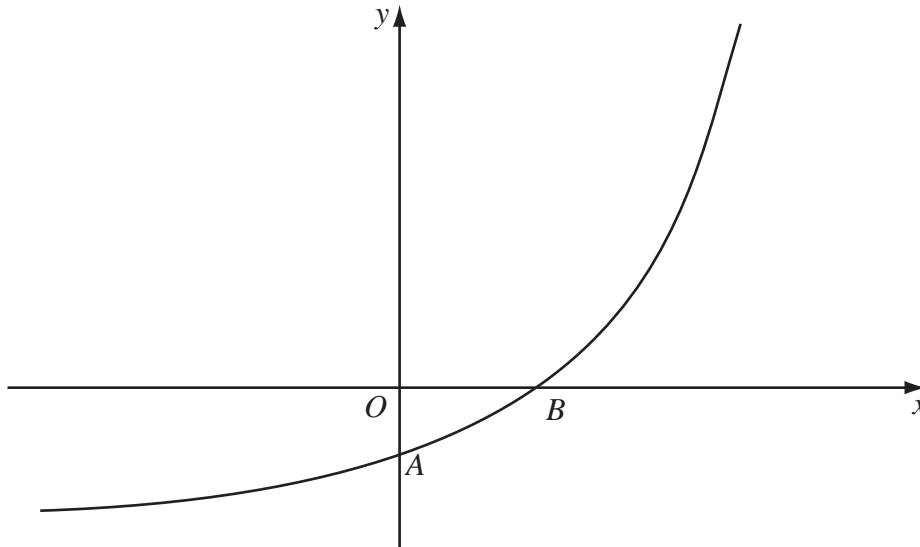






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5.



**Figure 2**

Figure 2 shows a sketch of part of the curve with equation  $y = f(x)$ ,  $x \in \mathbb{R}$ .

The curve meets the coordinate axes at the points  $A(0, 1-k)$  and  $B(\frac{1}{2} \ln k, 0)$ , where  $k$  is a constant and  $k > 1$ , as shown in Figure 2.

On separate diagrams, sketch the curve with equation

(a)  $y = |f(x)|$ , (3)

(b)  $y = f^{-1}(x)$ . (2)

Show on each sketch the coordinates, in terms of  $k$ , of each point at which the curve meets or cuts the axes.

Given that  $f(x) = e^{2x} - k$ ,

(c) state the range of  $f$ , (1)

(d) find  $f^{-1}(x)$ , (3)

(e) write down the domain of  $f^{-1}$ . (1)



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**Question 5 continued**



H 3 4 2 6 4 A 0 1 5 2 8











