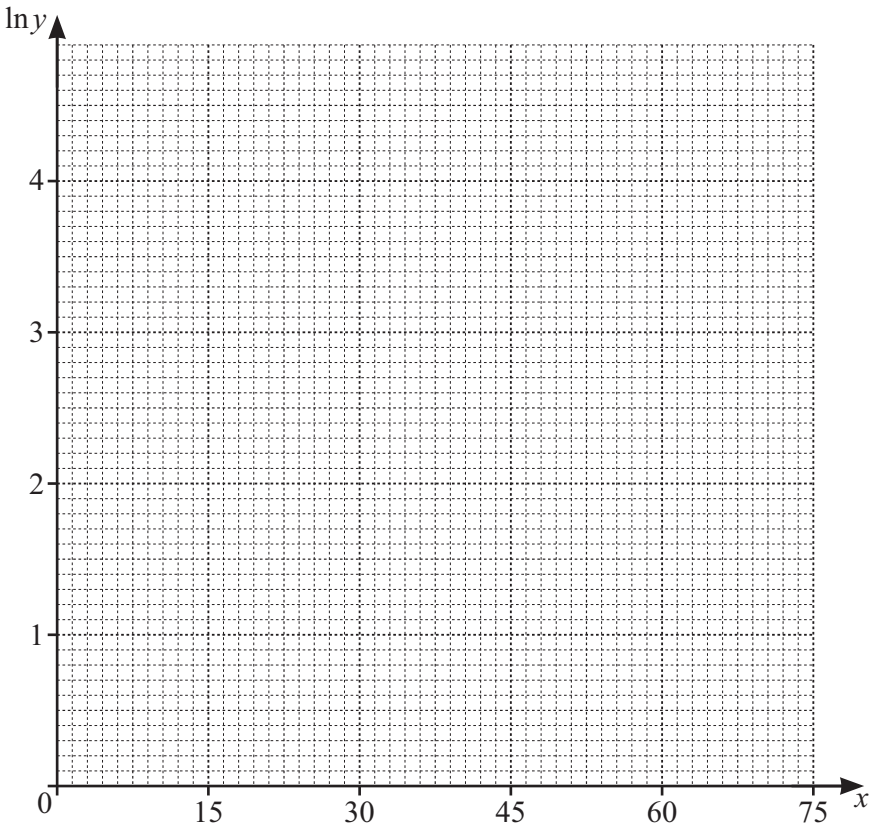
8 An experiment was carried out and values of y for certain values of x were recorded. The table shows the values recorded.

x	15	30	45	60	75
y	10	13	22	35	50

The relationship between y and x is modelled by $y = Ae^{kx}$, where A and k are constants.

(a) Draw a straight line graph for $\ln y$ against x. [2]



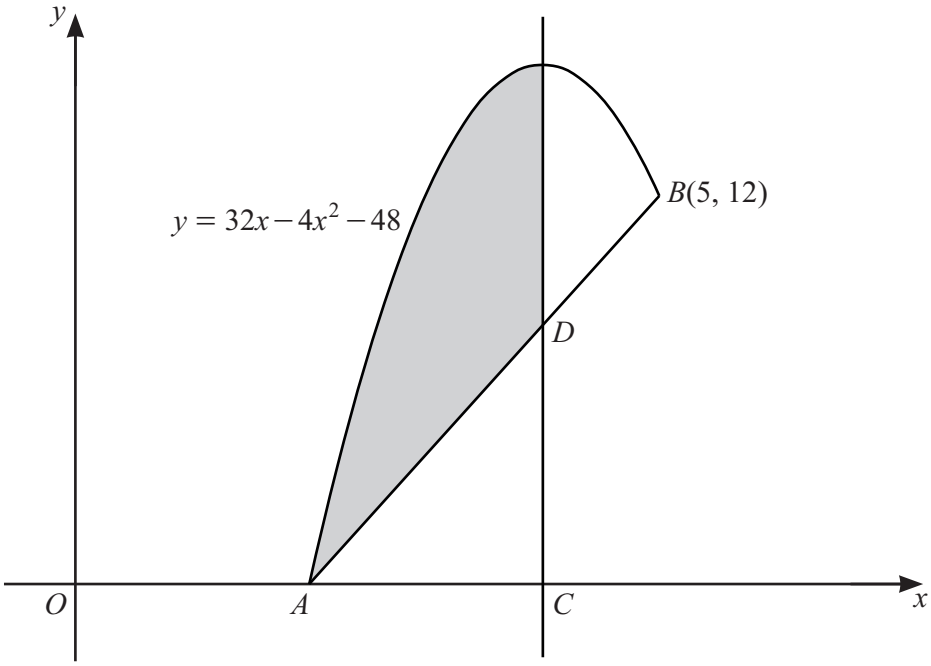
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN

(b) Find the equation of the line in **part (a)** and hence find the values of A and k. Give each value correct to 1 significant figure. [5]

(c) Find the value of x for which $y = 17$. [2]

DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN

9



The diagram shows part of the curve $y = 32x - 4x^2 - 48$ and the line AB.
The curve and the line AB meet the x-axis at A and meet again at the point $B(5, 12)$.
The line CD extended is parallel to the y-axis and passes through the maximum point of the curve.
Find the area of the shaded region. [9]

DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN
DO NOT WRITE IN THIS MARGIN