9 The curve C has equation

$$y = x^2 + \frac{24}{x} - 25 \qquad \text{for } 0 < x \leqslant 5$$

(a) Find, to one decimal place, the coordinates of the stationary point of C

(5)

(b) Complete the table of values for y
Give your values of y to one decimal place where necessary.

x	0.4	0.6	0.8	1	2	3	4	5
y	35.2			0		–8	–3	4.8

(2)

(c) On the grid opposite, plot the stationary point and plot the points from your completed table. Join these to form a smooth curve.

(4)

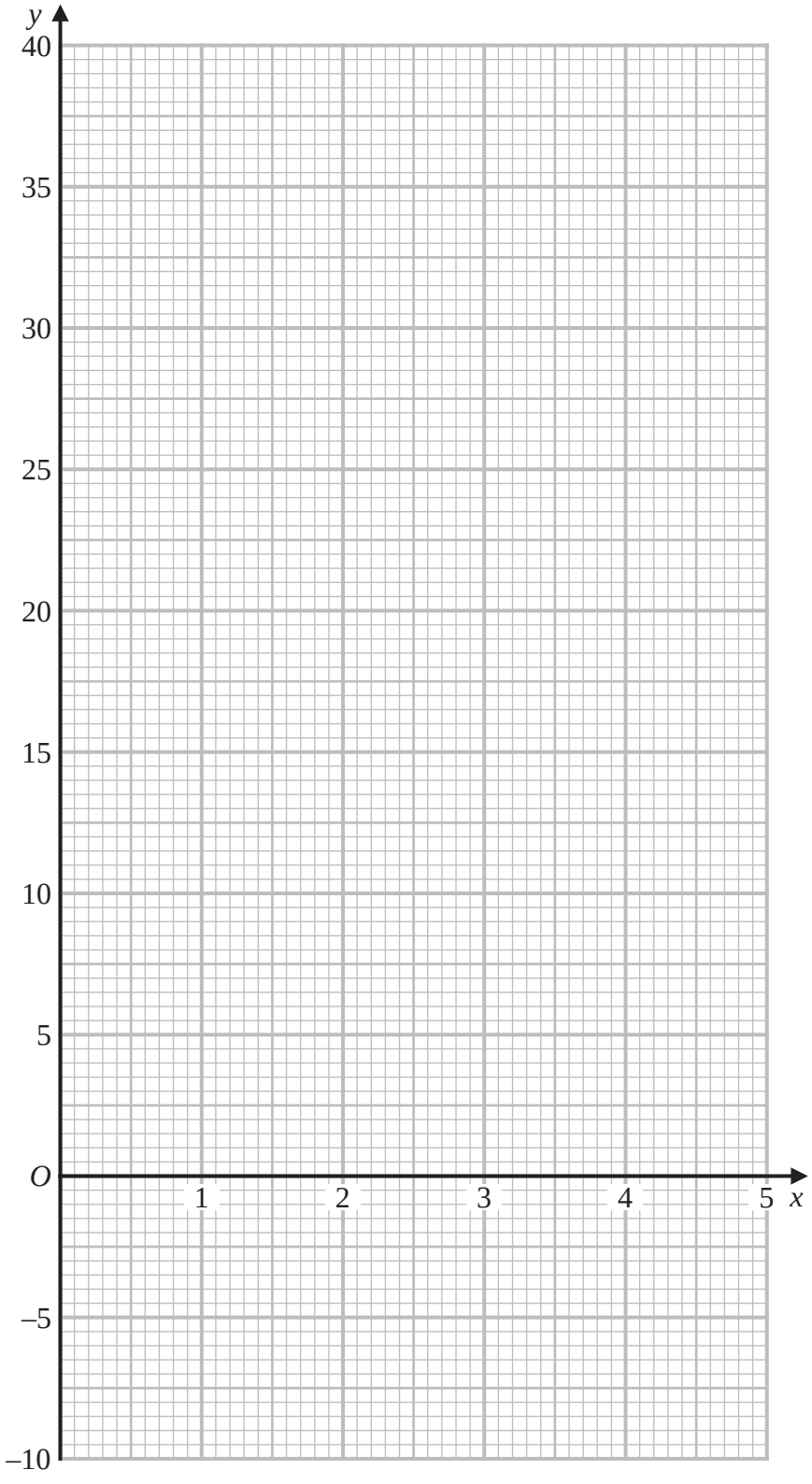
(d) By drawing a suitable straight line on the grid, find estimates, to one decimal place, of the solutions to the equation

$$x^3 + 8x^2 - 49x + 24 = 0$$

within the range $0 < x \leqslant 5$

(4)

Question 9 continued

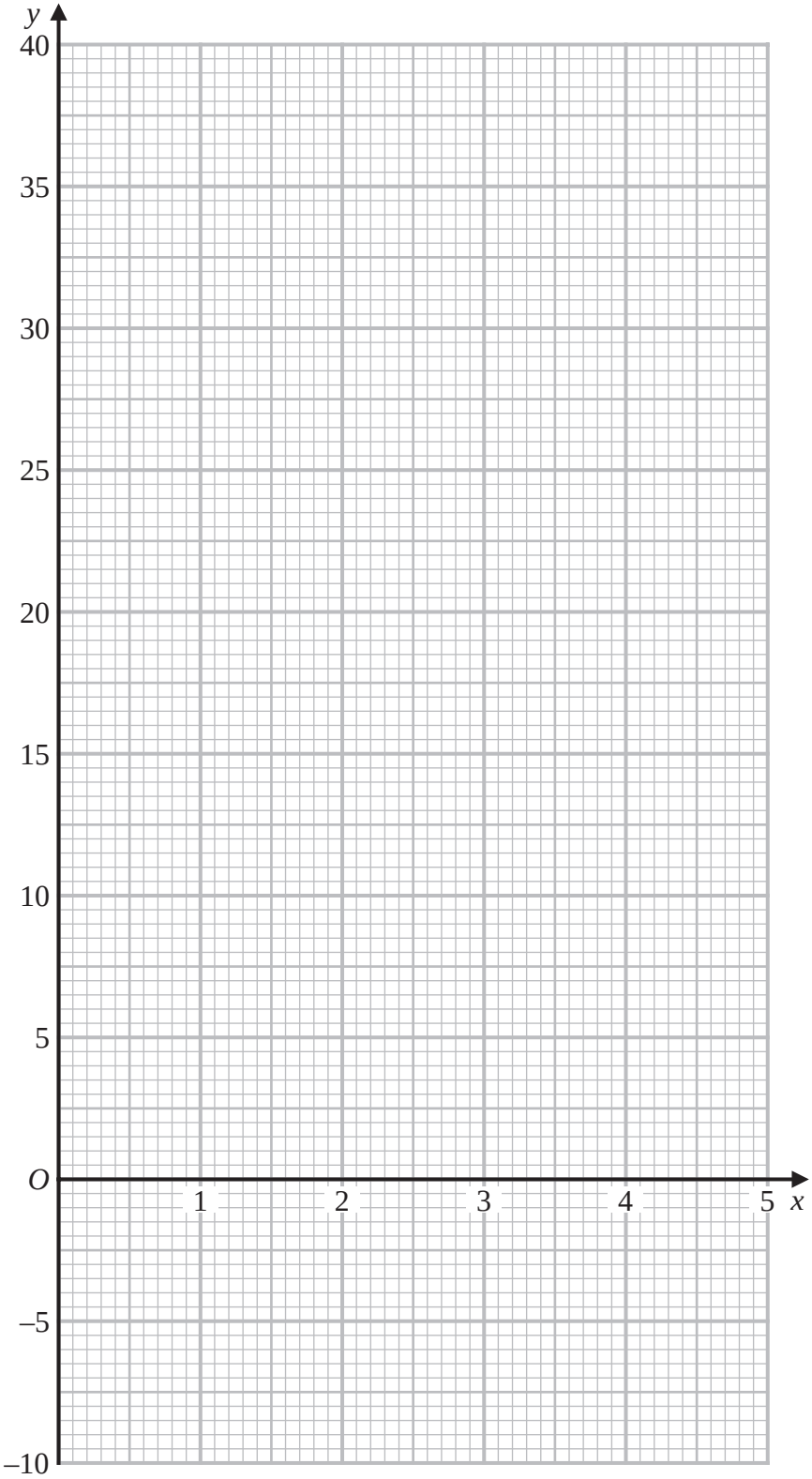


Turn over for a spare grid if you need to redraw your curve.

Question 9 continued

Question 9 continued

Only use this grid if you need to redraw your curve.



(Total for Question 9 is 15 marks)