7 Here is the equation of a curve $y = x^3 - 3x - 1$

(a) Complete the table of values for $y = x^3 - 3x - 1$, giving your values of y to 2 decimal places where necessary.

x	−2	−1.5	−1	−0.5	0	0.5	1	1.5	2
y		0.13		0.38			−3	−2.13	1

(3)

(b) On the grid opposite, plot the points from your completed table and join them to form a smooth curve.

(3)

(c) Use your graph to estimate, to one decimal place, the solutions in the interval $-2 \leqslant x \leqslant 2$ of the equation

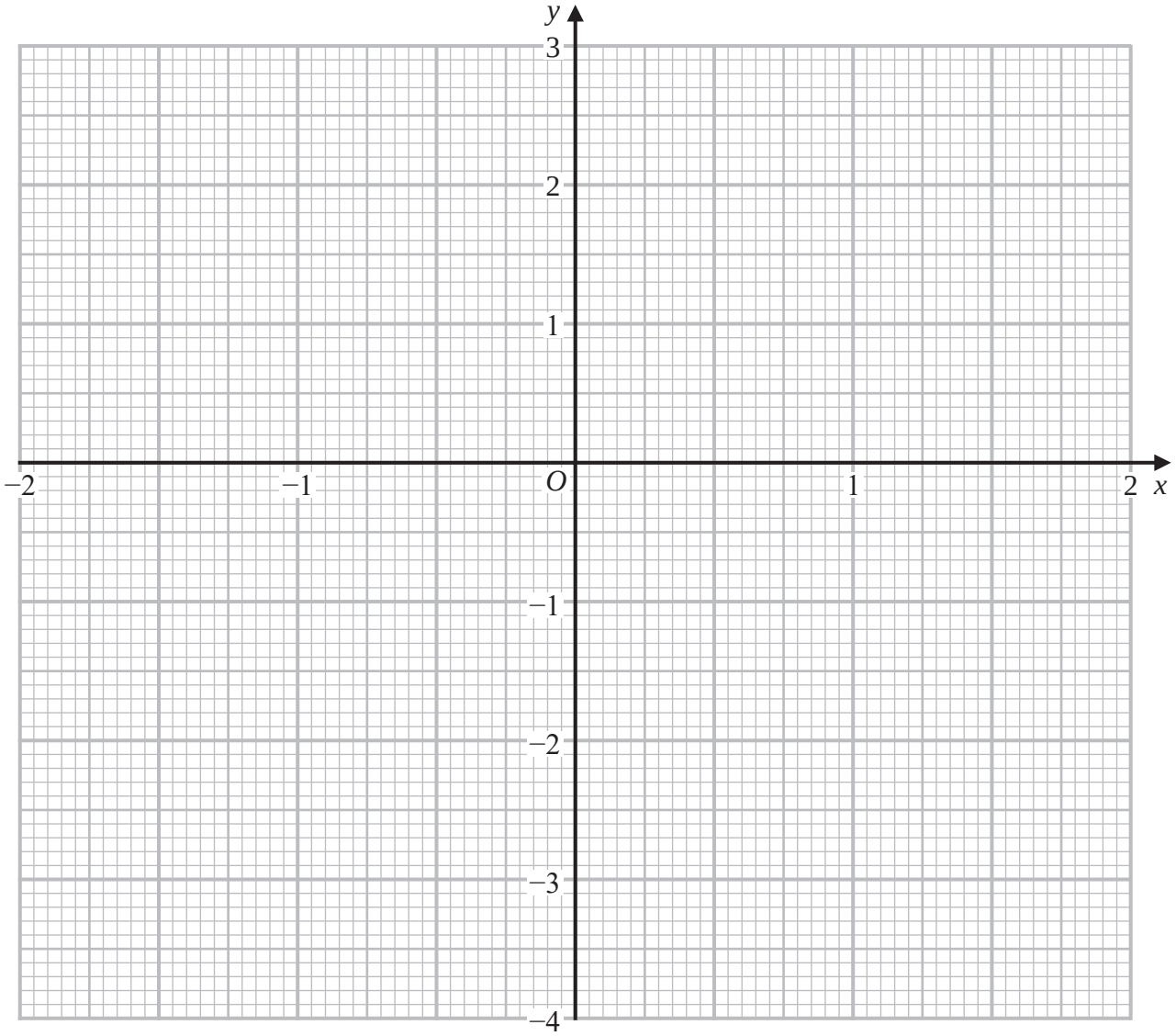
$$x^3 - 3x - 1 = 0.5$$

(2)

(d) By drawing a suitable straight line on the grid, find an estimate, to one significant figure, of the gradient of the curve at the point where $x = 0.5$

(2)

Question 7 continued

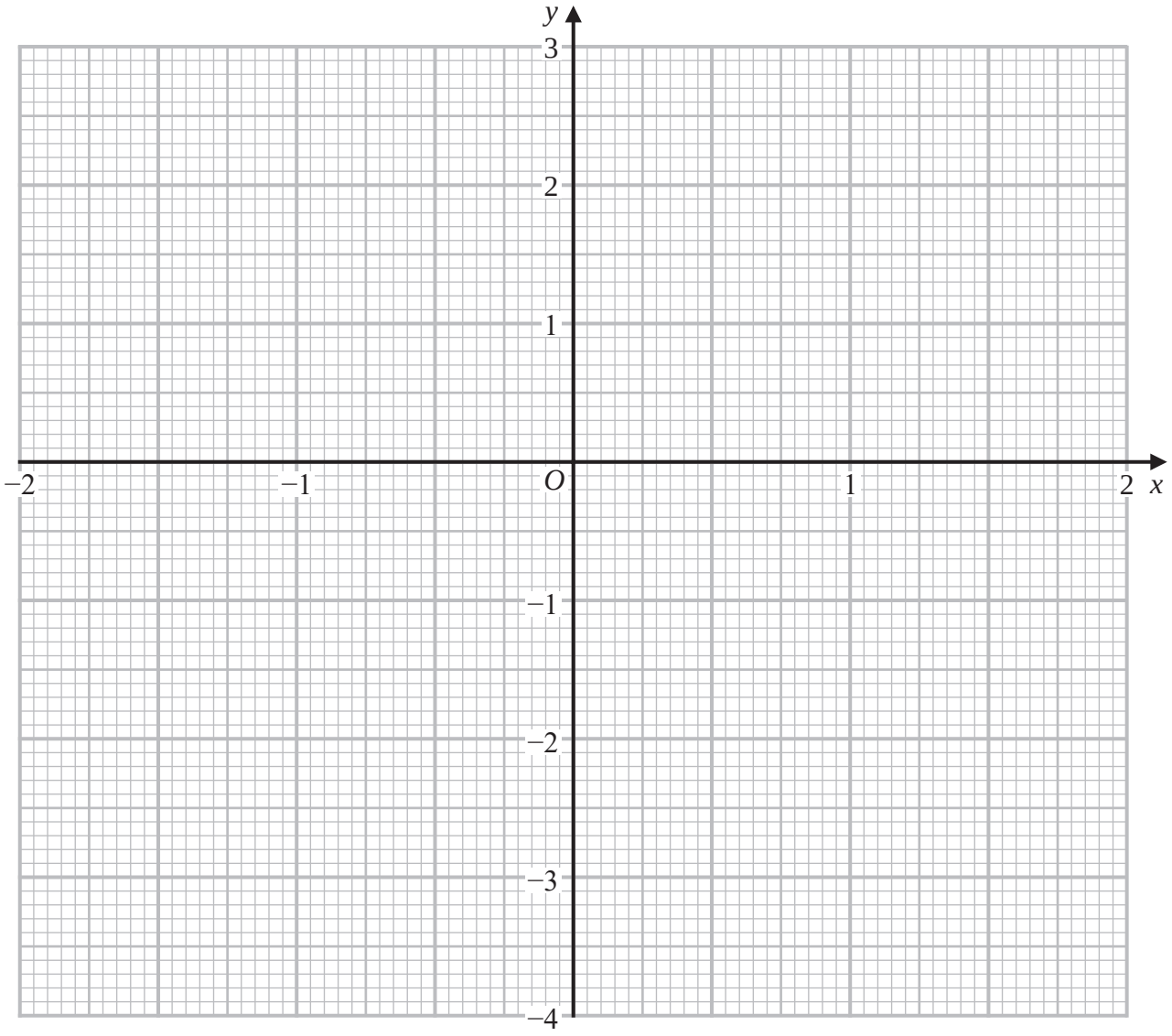


Turn over for a spare grid if you need to redraw your curve.

Question 7 continued

Question 7 continued

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



(Total for Question 7 is 10 marks)