Quadratic & Other Curves

(1) The table shows some of the values of $y = x^2 + x$ for values of x from -3 to 2.

(a) Complete the table by finding the value of y for $x = -1$.

x	-3	-2	-1	0	1	2
$y = x^2 + x$	6	2		0	2	6

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[1]

(b) On the graph paper below, draw the graph of $y = x^2 + x$ for values of x from -3 to 2.

[2]
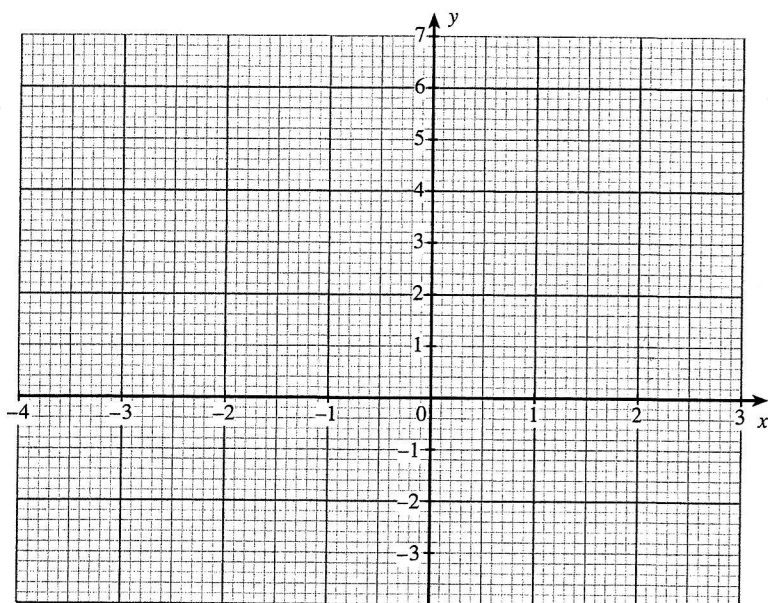
(2) (a) Complete the following table which gives values of $y = 5 - x^2$ for values of x from -2 to 4.

[1]

x	-2	-1	0	1	2	3	4
$y = 5 - x^2$	1		5	4	1	-4	-11

(b) Using suitable scales draw the graph of $y = 5 - x^2$ for values of x from -2 to 4 on the graph paper below.

[3]
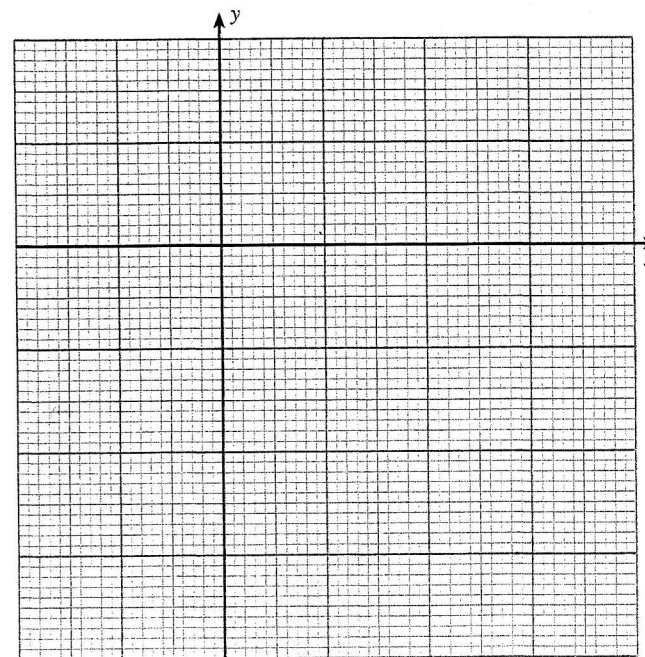
(c) Draw the line $y = 2$ on the graph paper and write down the x-values of the points where the two graphs intersect.

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[2]

Turn over.

WARM UP 1

(a) The cost of a stand season ticket last year was £200. This year it has increased to £250. Find the percentage increase in the cost of the stand season ticket.

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[3]

(b) Two friends, Nigel and Paul, decide to share the cost of a £100 field season ticket in the ratio 4:1.

(i) How much **each** should each of Nigel and Paul pay towards the cost of the ticket?

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Nigel pays .... Paul pays ....

[2]

(ii) In the season there are 45 matches to attend. Nigel suggests that they take it in turns to attend every other match. Would this be a fair suggestion? You must explain your answer giving an alternative suggestion if you decide that this would not be a fair method.

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[2]

3 The table shows some of the values of $y = x^3 + 3$ for values of x from -3 to 3.

(a) Complete the table by finding the value of y for $x = -1$ and $x = 2$.

x	-3	-2	-1	0	1	2	3
$y = x^3 + 3$	-24	-5		3	4		30

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[2]

(b) On the graph paper below, draw the graph of $y = x^3 + 3$ for values of x from -3 to 3.

[2]

Turn over.
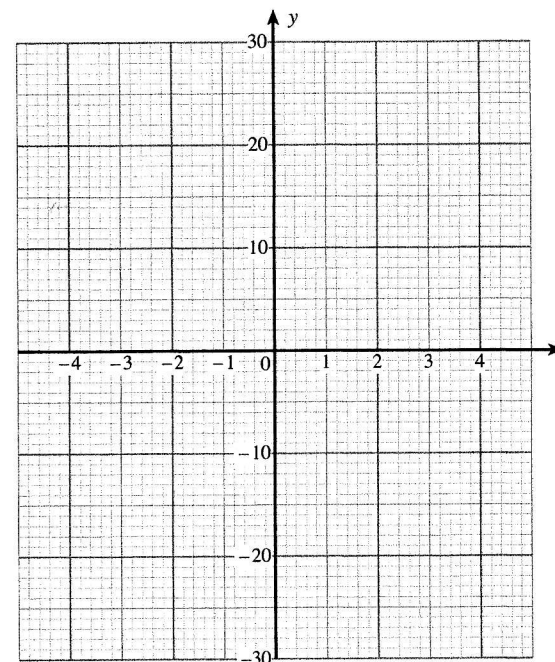
4. The table shows the values of $y = 3x^2 - 2x - 5$ for values of x from -2 to 4.

x	-2	-1	0	1	2	3	4
$y = 3x^2 - 2x - 5$	11	0	-5	-4	3	16	35

(a) On the graph paper opposite, draw the graph of $y = 3x^2 - 2x - 5$ for values of x between -2 and 4.

[2]

(b) Draw the line $y = 5$ on your graph paper and write down the x-values of the points where your two graphs intersect.

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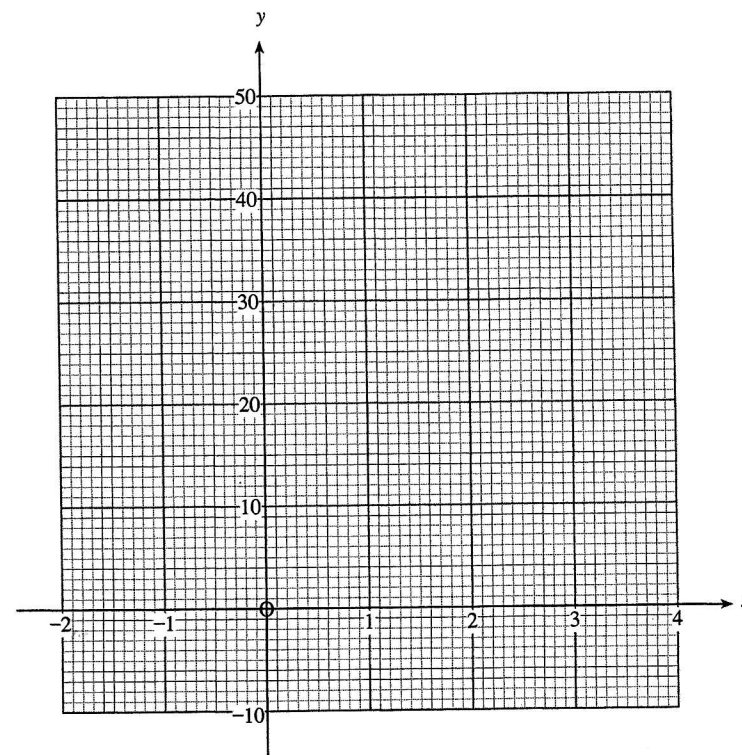
[2]

For use with Question 4

Turn over.

5 The table shows some of the values of $y = 2x^2 - 5x - 8$ for values of x from -2 to 4.

(a) Complete the table by finding the value of y for $x = 3$.

x	-2	-1	0	1	2	3	4
$y = 2x^2 - 5x - 8$	10	-1	-8	-11	-10		4

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[1]

(b) On the graph paper opposite, draw the graph of $y = 2x^2 - 5x - 8$ for values of x between -2 and 4.
[2]

(c) Draw the line $y = 3$ on your graph paper and write down the x-values of the points of intersection of your line with $y = 2x^2 - 5x - 8$.

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[2]

(d) Write down and simplify the equation in x whose solutions you found in (c).

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[1]
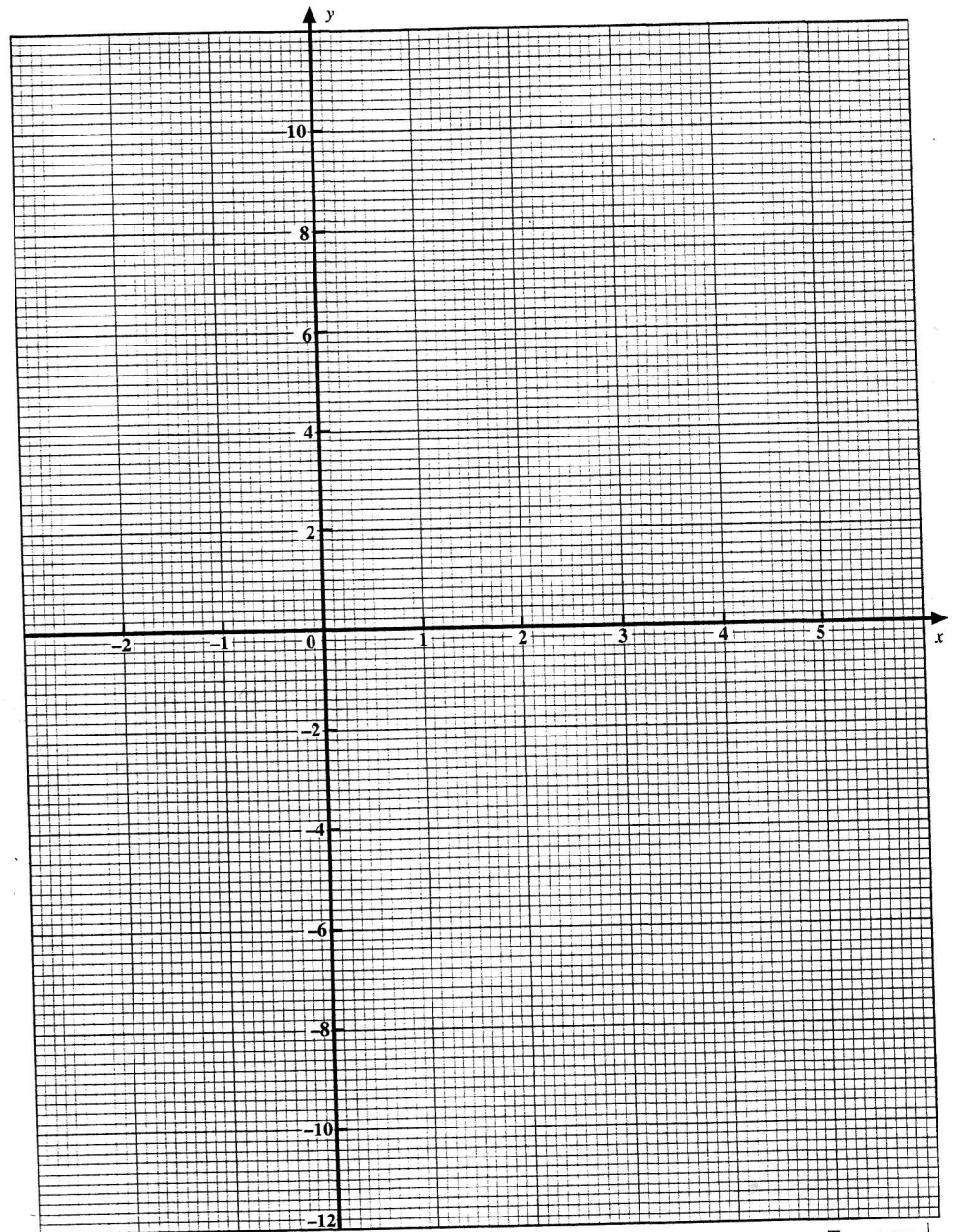
Turn over.

6 The table shows some of the values of $y = 2x^2 - 5x - 3$ for values of x from –2 to 4.

(a) Complete the table by finding the value of y for $x = -1$.

x	–2	–1	0	1	2	3	4
$y = 2x^2 - 5x - 3$	15		–3	–6	–5	0	9

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[1]

(b) On the graph paper opposite, draw the graph of $y = 2x^2 - 5x - 3$ for values of x between –2 and 4.

[3]

(c) Draw the line $y = 3$ on the graph paper and write down the x-values of the points where your two graphs intersect.

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[2]

(d) Write down the equation in x whose solutions are the x-values you found in *(c)*.

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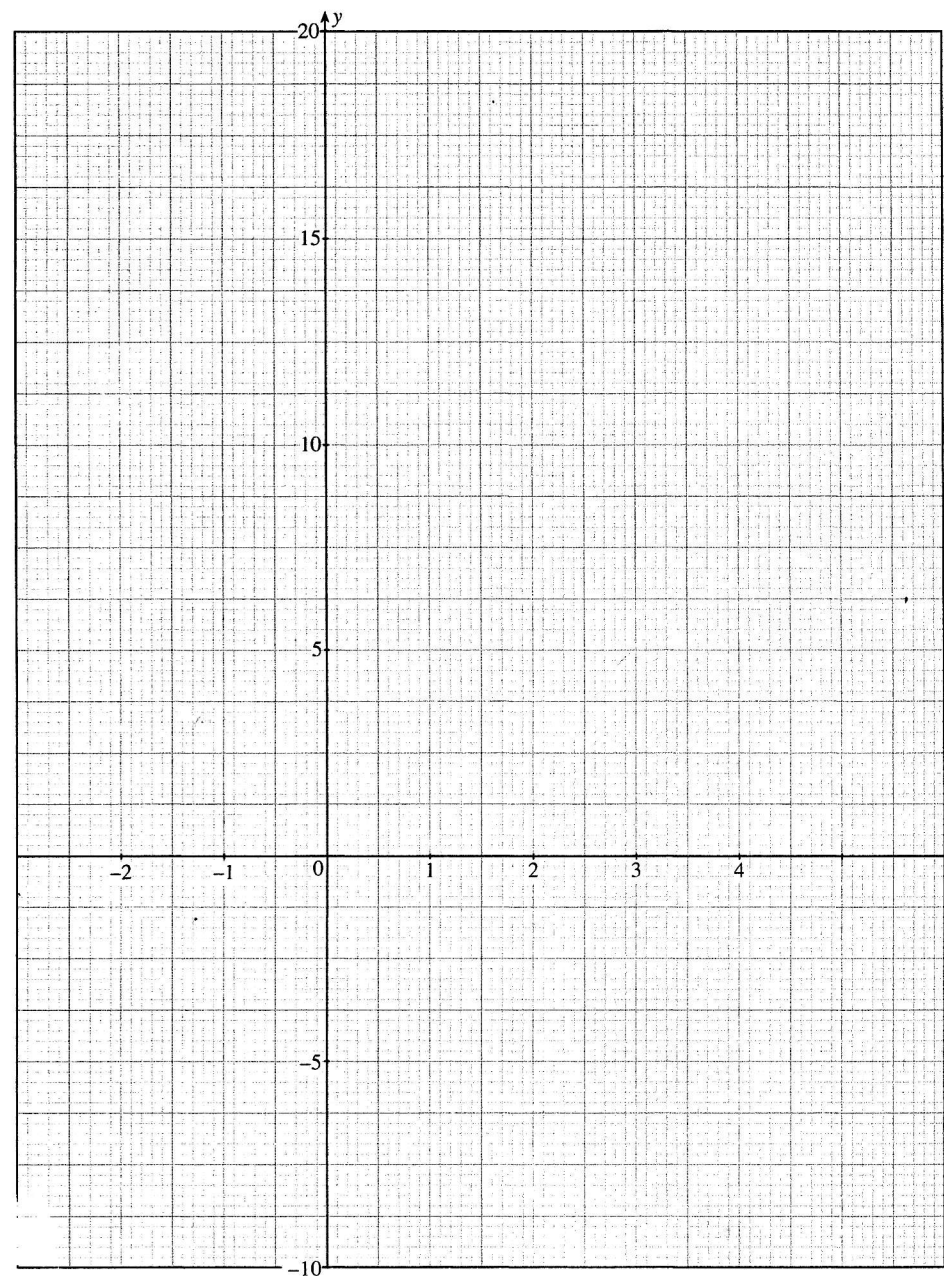
[1]

Turn over.

7

The table shows some of the values of $y = 3x^2 + x - 5$ for values of x from -3 to 3.

(a) Complete the table by finding the value of y for $x = -2$.

x	-3	-2	-1	0	1	2	3
$y = 3x^2 + x - 5$	19		-3	-5	-1	9	25

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[1]

(b) On the graph paper opposite, draw the graph of $y = 3x^2 + x - 5$ for values of x between -3 and 3.

[3]

(c) Draw the line $y = 11$ on your graph paper and write down the x-values of the points where your two graphs intersect.

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[2]

Turn over.
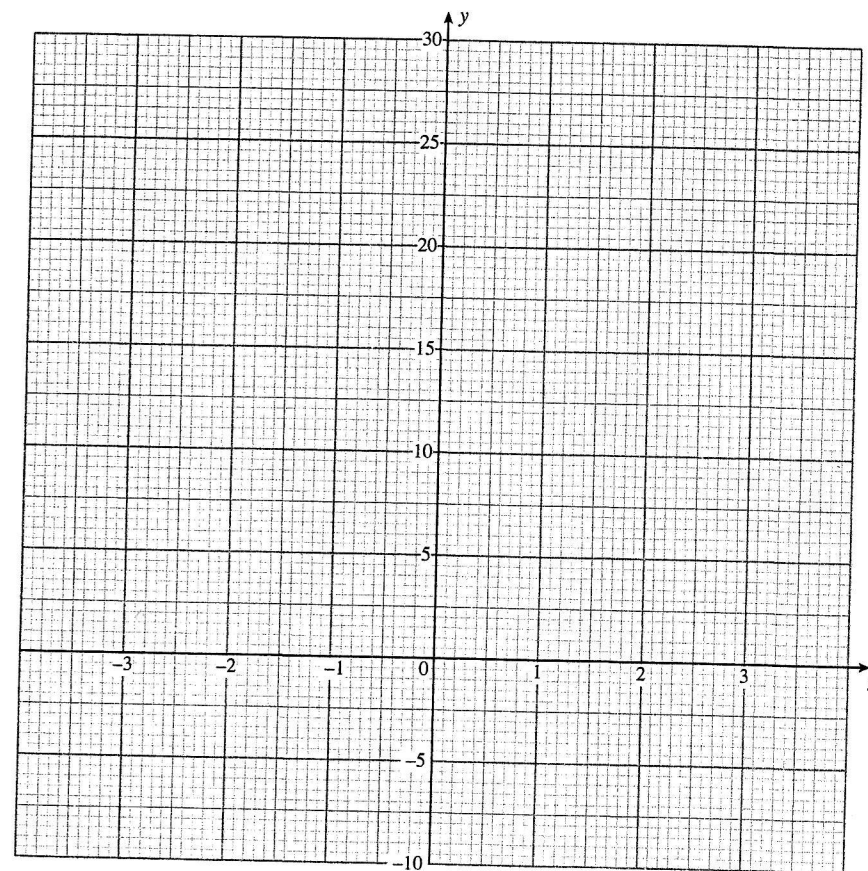
The table shows some of the values of $y = 3x + \dfrac{10}{x}$ for values of x from 1 to 5.

(a)　Complete the table by finding the value of y when $x = 1$ and $x = 2$.

x	1	2	3	4	5
y			12·33	14·5	17

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[1]

(b)　On the graph paper opposite, draw the graph of $y = 3x + \dfrac{10}{x}$ for values of x between 1 and 5.

[1]

(c)　Find the coordinates of the point of intersection of $y = 3x + \dfrac{10}{x}$

and $y = 27 - 4x$ which lies between $x = 1$ and $x = 5$.

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[2]

Turn over.