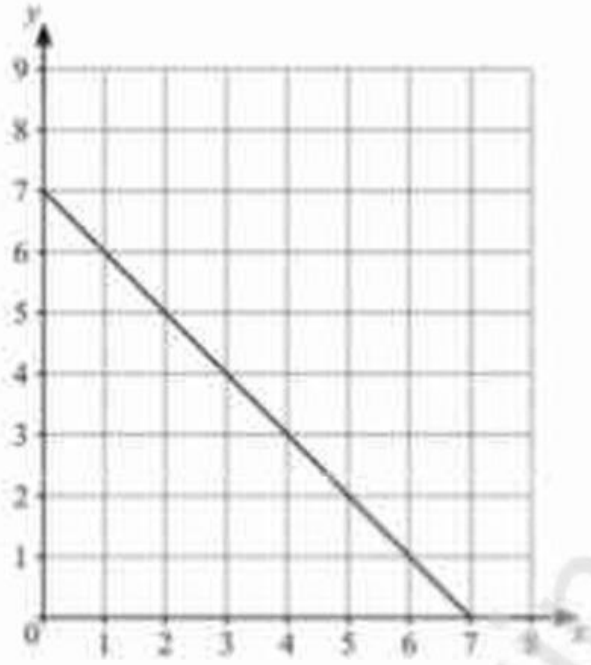
6



The line $x + y = 7$ is drawn on the grid.

(a) On the grid, draw the line $y = 2x + 1$. [2]

(b) Use your graph to solve these simultaneous equations.

$$x + y = 7$$
$$y = 2x + 1$$

$x =$ _____

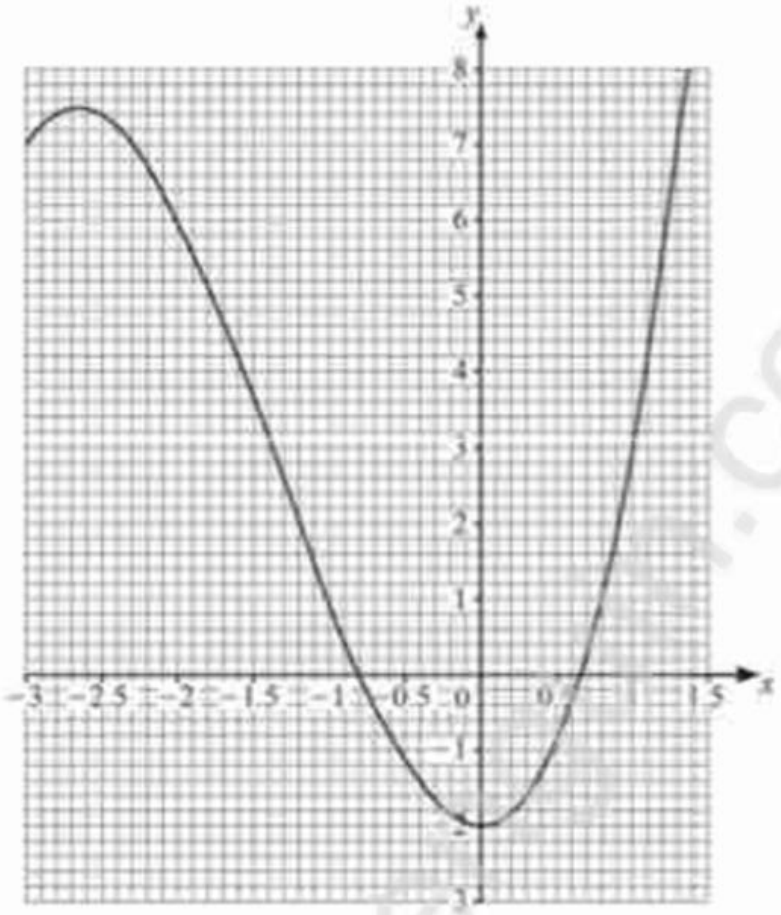
$y =$ _____

[1]

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LIVEWORKSHEETS

18



The diagram shows the graph of $y = x^3 + 4x^2 - 2$ for $-3 \leqslant x \leqslant 1.5$.

By drawing a suitable straight line, solve the equation $x^3 + 4x^2 - 2 = 2x$ for $-3 \leqslant x \leqslant 1.5$.

$x =$ _____ or $x =$ _____ [3]

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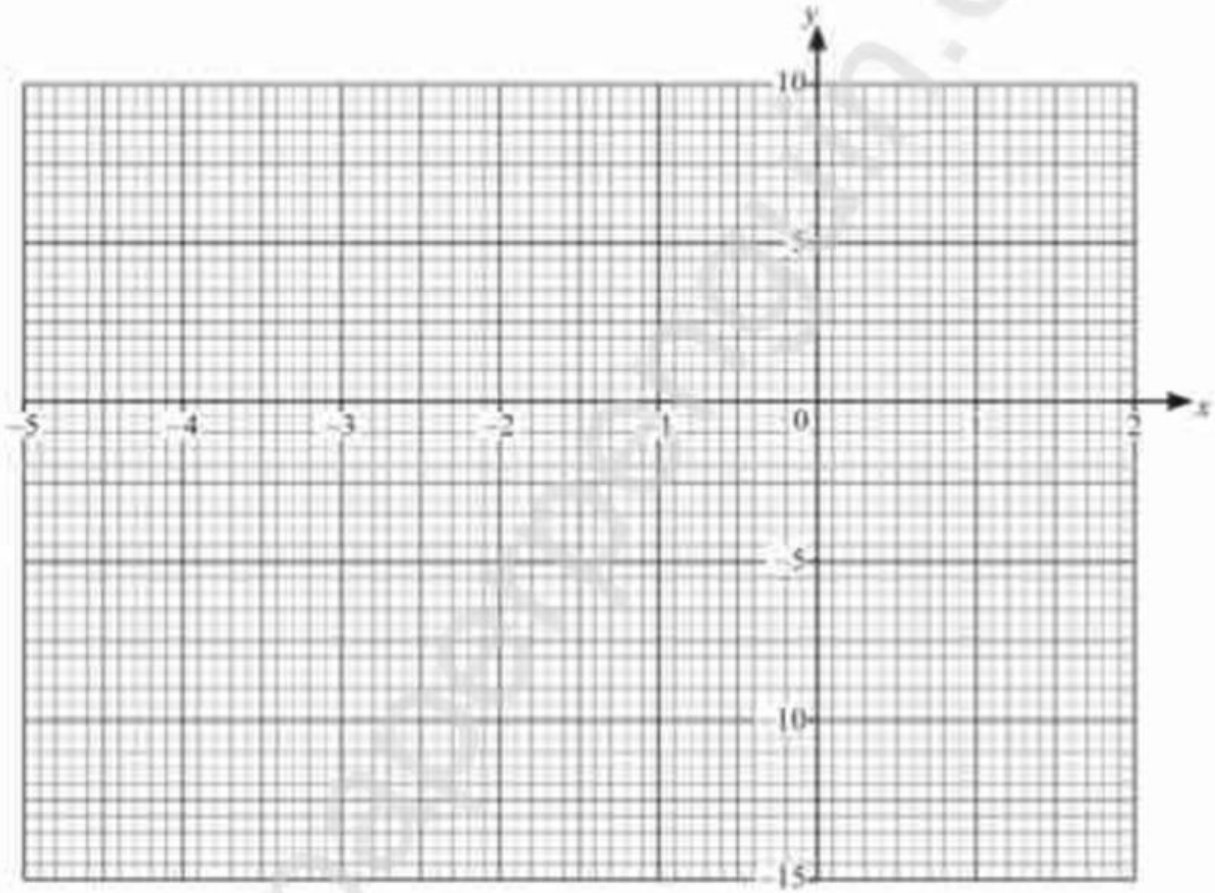
LIVEWORKSHEETS

2 The table shows some values for $y = x^3 + 4x^2 - 4$.

x	−4.5	−4	−3	−2	−1	0	1	1.5
y	−14.1		5	4		−4	1	8.4

(a) Complete the table. [2]

(b) On the grid, draw the graph of $y = x^3 + 4x^2 - 4$ for $-4.5 \leqslant x \leqslant 1.5$.

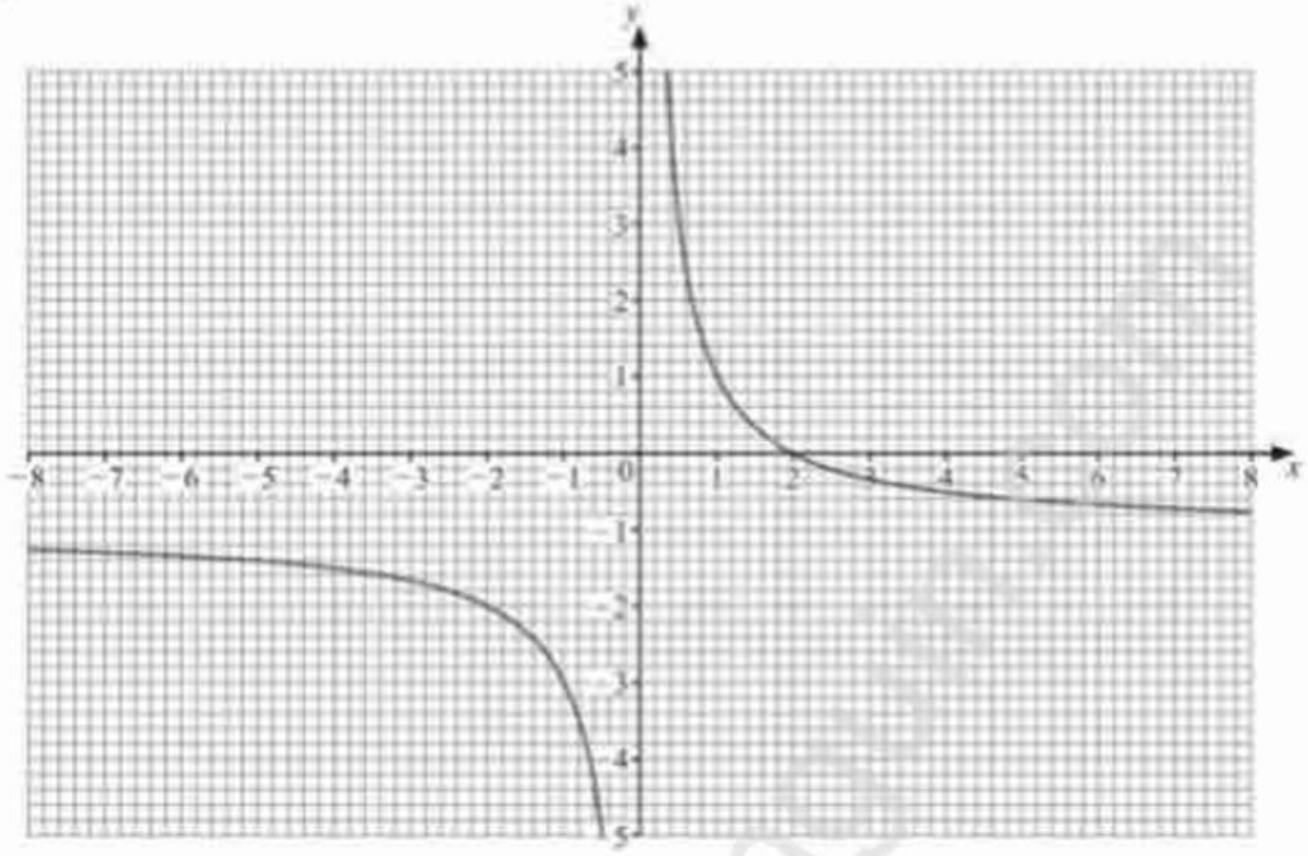


[4]

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LIVEWORKSHEETS

15



The diagram shows the graph of $y = \frac{2}{x} - 1$.

(a) Write down the coordinates of the point where the graph crosses the x-axis.

(_____ , _____) [1]

(b) Write down the equation of each asymptote.

.....

.....

[2]

(c) By drawing a suitable straight line on the grid, solve $\frac{2}{x} - x - 1 = 0$.

$x =$ _____ or $x =$ _____ [3]

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LIVEWORKSHEETS

2 (a) (i) $y = 2^x$

Complete the table.

x	0	1	2	3	4
y		2	4	8	

[2]

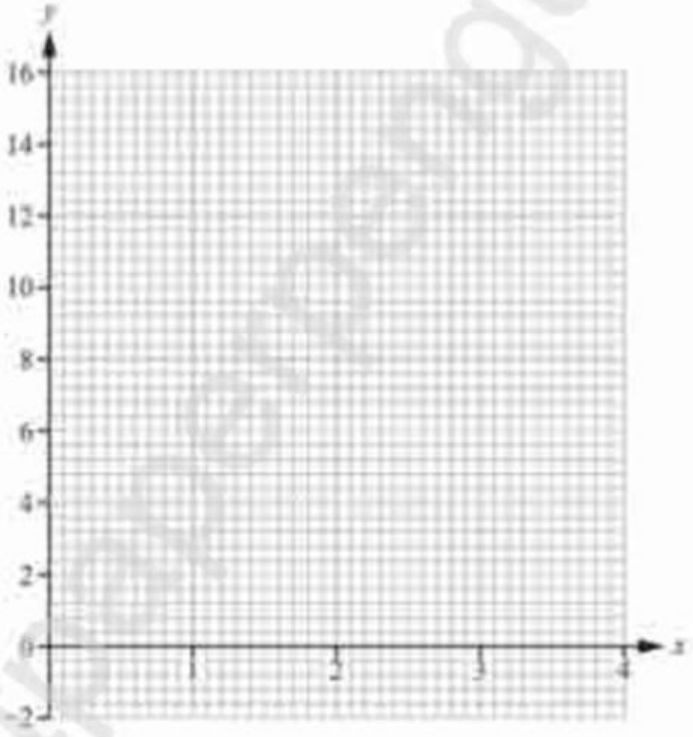
(ii) $y = 14 - x^2$

Complete the table.

x	0	1	2	3	4
y		13	10	5	

[2]

(b) On the grid, draw the graphs of $y = 2^x$ and $y = 14 - x^2$ for $0 \leqslant x \leqslant 4$.



[6]

(c) Use your graphs to solve the equations.

(i) $2^x = 12$

$x =$ _____ [1]

(ii) $2^x = 14 - x^2$

$x =$ _____ [1]

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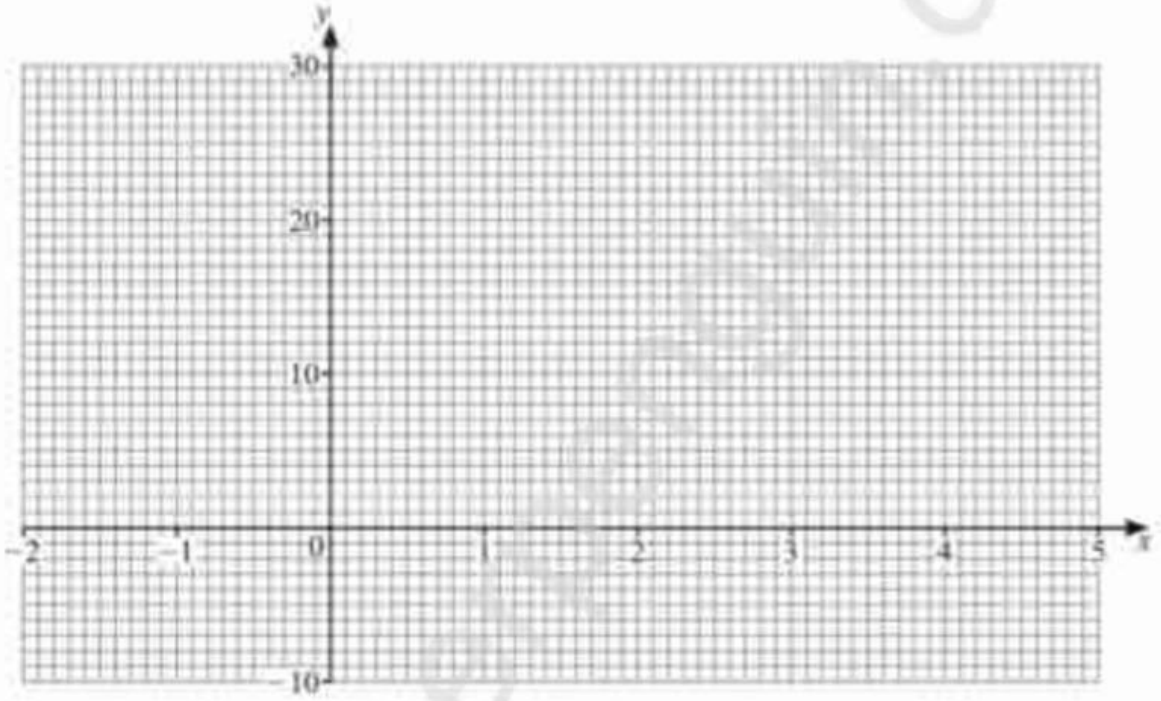
LIVEWORKSHEETS

14 The table shows some values for $y = 5x^2 - x^3 - 4$.

x	−2	−1	0	1	2	3	4	5
y	24		−4		8	14		−4

(a) Complete the table. [3]

(b) On the grid, draw the graph of $y = 5x^2 - x^3 - 4$ for $-2 \leqslant x \leqslant 5$.



[4]

(c) By drawing a suitable straight line on the grid, solve the equation $x^3 - 5x^2 - x + 14 = 0$.

$x =$ ..... or $x =$ ..... or $x =$ ..... [4]

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LIVEWORKSHEETS

2 The table shows some values for $y = x^2 - \frac{1}{3x}$, $x \neq 0$.
The y-values are rounded to 1 decimal place.

x	−2	−1.5	−1	−0.75	−0.5	−0.25	−0.1
y	4.2	2.5	1.3			1.4	3.3

(a) Complete the table. [2]

(b) On the grid, draw the graph of $y = x^2 - \frac{1}{3x}$ for $-2 \leqslant x \leqslant -0.1$.

The graph of $y = x^2 - \frac{1}{3x}$ for $x > 0$ has been drawn for you.



[4]

(c) By drawing a suitable line on the grid, solve the equation $x^2 - \frac{1}{3x} + 1 = 0$.

$x =$ _____ [2]

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LIVEWORKSHEETS

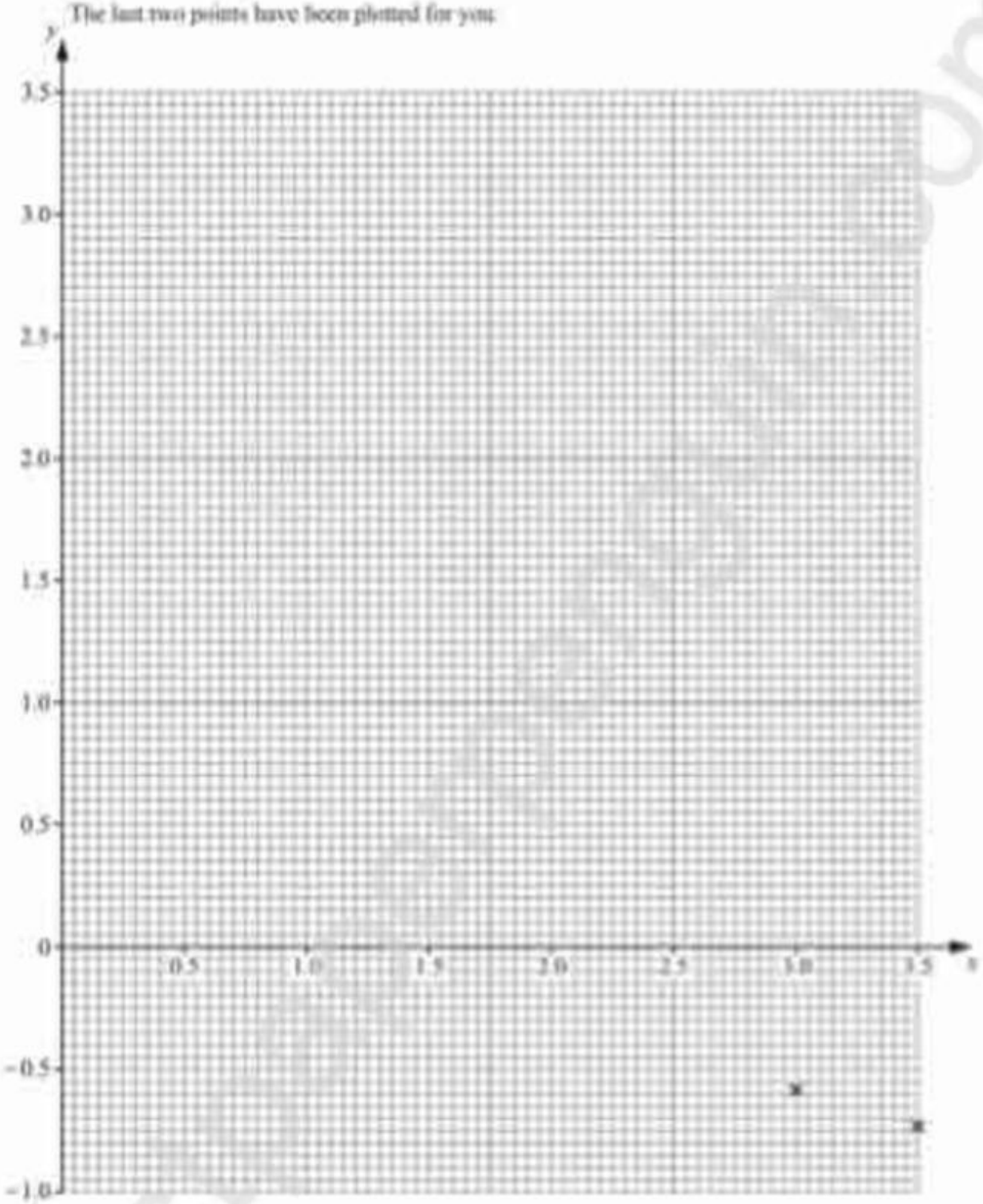
5 The table shows some values of $y = \frac{1}{2x} - \frac{x}{4}$ for $0.15 \leqslant x \leqslant 3.5$.

x	0.15	0.2	0.3	1	1.5	2	2.5	3	3.5
y	3.30		0.88		−0.04		−0.43	−0.58	−0.73

(a) Complete the table. [3]

(b) On the grid, draw the graph of $y = \frac{1}{2x} - \frac{x}{4}$ for $0.15 \leqslant x \leqslant 3.5$.

The last two points have been plotted for you.



[4]

(c) Use your graph to solve the equation $\frac{1}{2x} - \frac{x}{4} = \frac{1}{2}$ for $0.15 \leqslant x \leqslant 3.5$.

$x =$ _____ [1]

(d) **(i)** On the grid, draw the line $y = 2 - x$. [2]

(ii) Write down the x co-ordinates of the points where the line $y = 2 - x$ crosses the graph of $y = \frac{1}{2x} - \frac{x}{4}$ for $0.15 \leqslant x \leqslant 3.5$.

$x =$ _____ and $x =$ _____ [2]

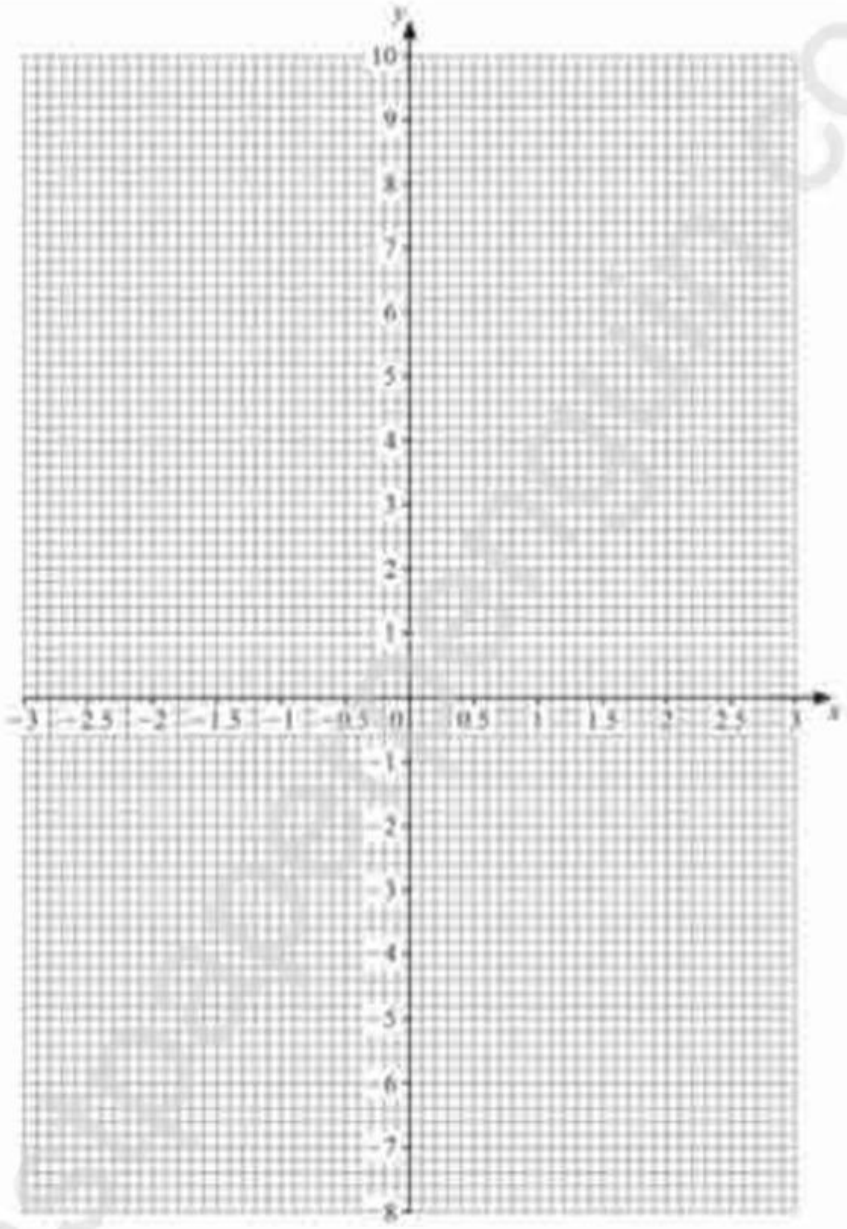
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LIVEWORKSHEETS

6 The table shows some values for $y = x^2 - \frac{3}{2x}$, $x \neq 0$, given correct to 1 decimal place.

x	−3	−2	−1	−0.5	−0.2	0.2	0.5	1	2	3
y			2.5	3.3	7.5	−7.5	−2.8	−0.5	3.3	

(a) (i) Complete the table. [3]

(ii) On the grid, draw the graph of $y = x^2 - \frac{3}{2x}$ for $-3 \leqslant x \leqslant -0.2$ and $0.2 \leqslant x \leqslant 3$.



[4]

(b) By drawing a suitable straight line on the grid, solve the equation $x^2 - \frac{3}{2x} = \frac{24}{5} - 2x$ for $-3 \leqslant x \leqslant -0.2$ and $0.2 \leqslant x \leqslant 3$.

$x =$ _____ or $x =$ _____ [4]

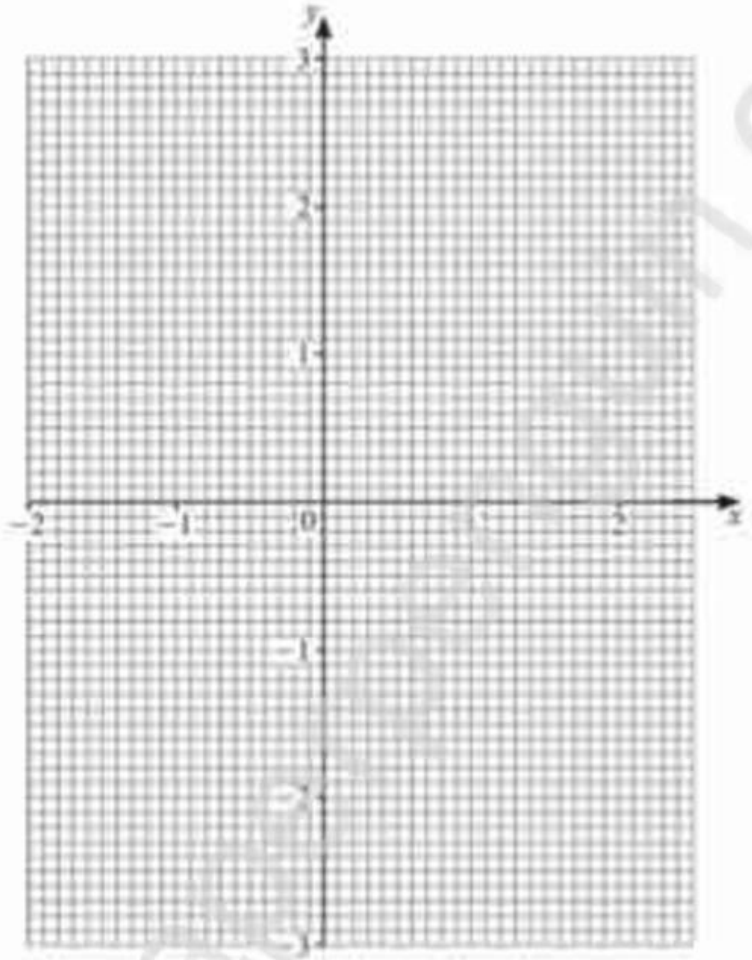
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LIVEWORKSHEETS

10 The table shows some values for $y = 2^x - 3$.

x	−2	−1	0	0.5	1	1.5	2	2.5
y	−2.75			−1.58		−0.17	1	2.66

(a) Complete the table. [3]

(b) On the grid, draw the graph of $y = 2^x - 3$ for $-2 \leqslant x \leqslant 2.5$.



[4]

(c) Use your graph to solve the equation $2^x - 3 = 2$.

$x =$ _____ [1]

(d) By drawing a suitable straight line, solve the equation $2^x - x - 1.5 = 0$.

$x =$ _____ or $x =$ _____ [4]

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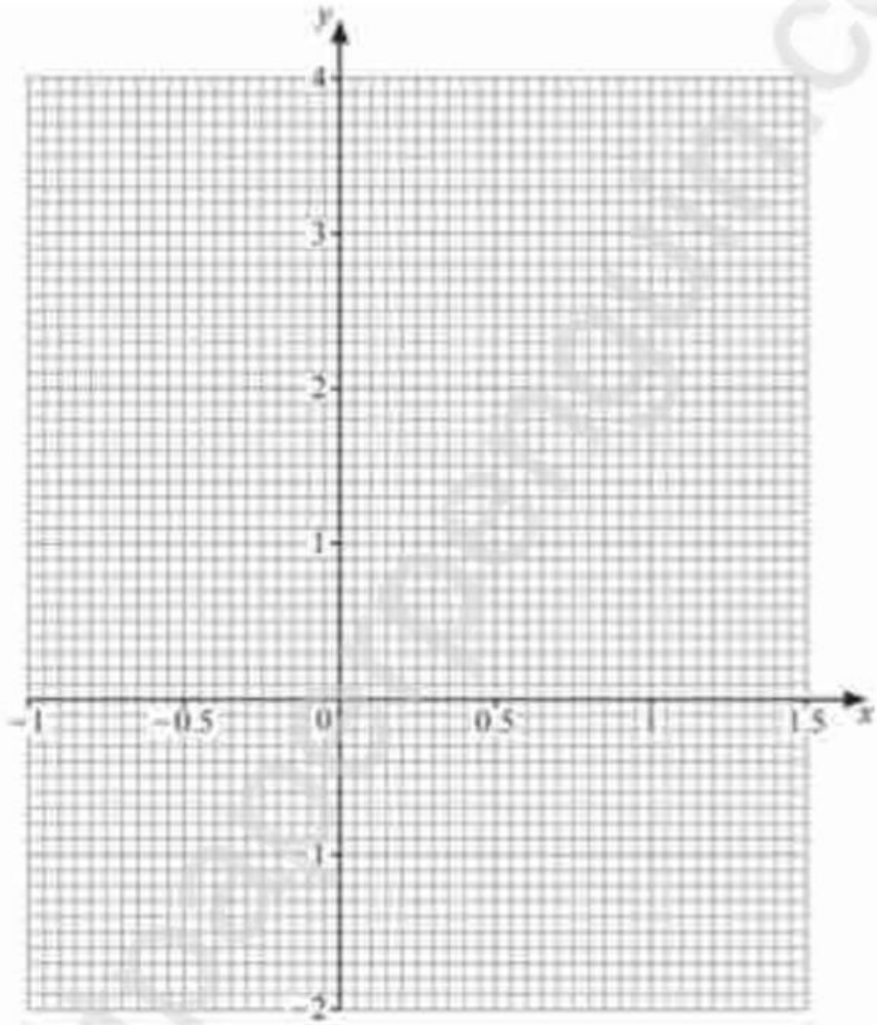
LIVEWORKSHEETS

20 The table shows some values for $y = 3x^2 - 2x - 1$.

x	−1	−0.5	0	0.5	1	1.5
y	4		−1		0	2.75

(a) Complete the table. [1]

(b) On the grid, draw the graph of $y = 3x^2 - 2x - 1$ for $-1 \leqslant x \leqslant 1.5$.



[3]

(c) By drawing a suitable straight line, solve the equation $3x^2 - 4x - 2 = 0$ for $-1 \leqslant x \leqslant 1.5$.

$x =$ _____ [3]

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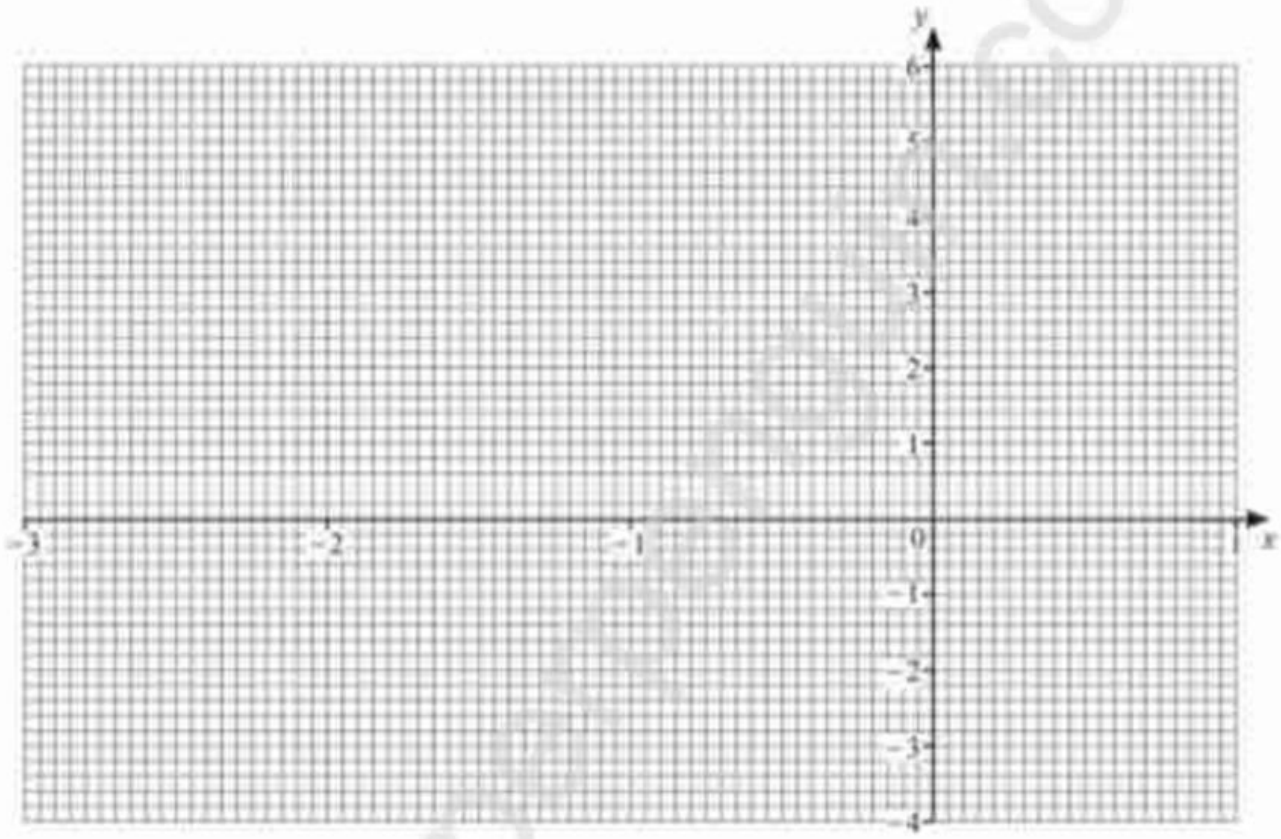
LIVEWORKSHEETS

10 The table shows some values for $y = 2x^3 + 6x^2 - 2.5$.

x	−3	−2.5	−2	−1.5	−1	−0.5	0	0.5	1
y		3.75	5.5	4.25	1.5		−2.5	−0.75	

(a) Complete the table. [3]

(b) On the grid, draw the graph of $y = 2x^3 + 6x^2 - 2.5$ for $-3 \leqslant x \leqslant 1$.



[4]

(c) By drawing a suitable line on the graph, solve the equation $2x^3 + 6x^2 = 4.5$.

$x =$ _____ or $x =$ _____ or $x =$ _____ [3]

(d) The equation $2x^3 + 6x^2 - 2.5 = k$ has exactly two solutions.

Write down the two possible values of k.

$k =$ _____ or $k =$ _____ [2]

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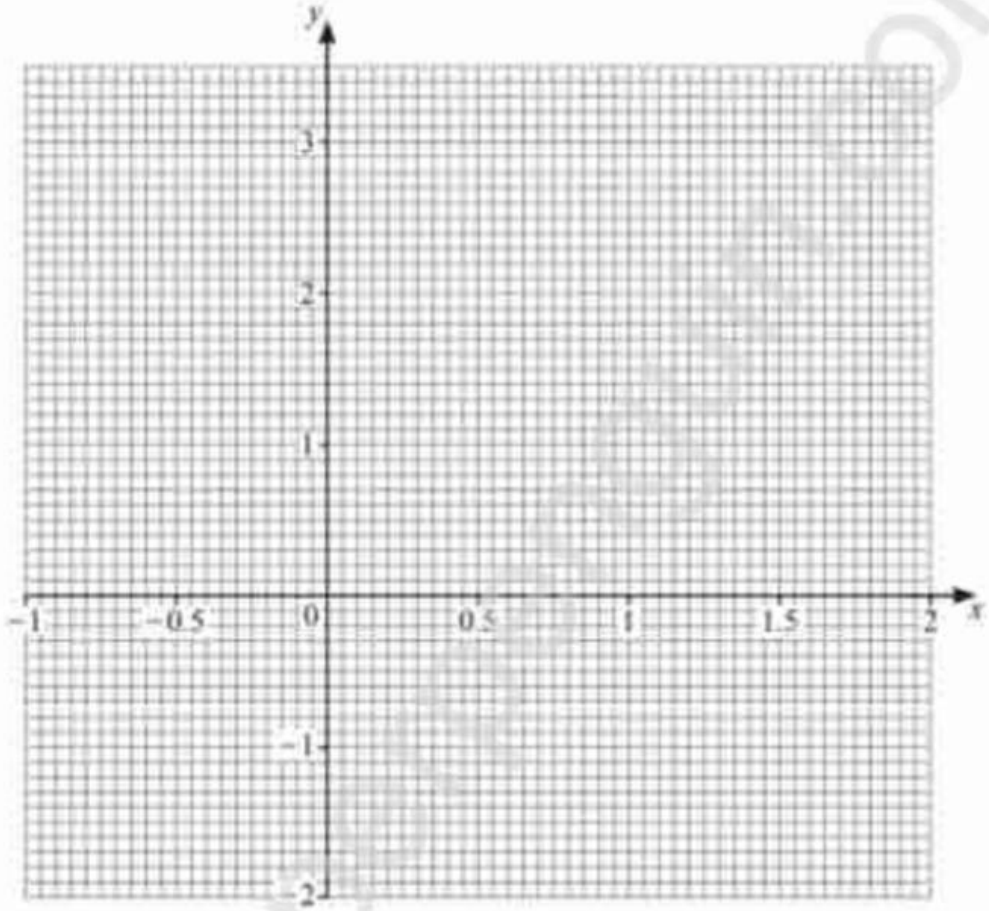
LIVEWORKSHEETS

2 The table shows some values for $y = 2 \times 0.5^x - 1$.

x	−1	−0.5	0	0.5	1	1.5	2
y	3	1.83		0.41	0	−0.29	

(a) (i) Complete the table. [2]

(ii) On the grid, draw the graph of $y = 2 \times 0.5^x - 1$ for $-1 \leqslant x \leqslant 2$.



[4]

(b) By drawing a suitable straight line, solve the equation $2 \times 0.5^x + 2x - 3.5 = 0$ for $-1 \leqslant x \leqslant 2$.

$x =$ _____ [3]

(c) There are no solutions to the equation $2 \times 0.5^x - 1 = k$ where k is an integer.

Complete the following statements.

The highest possible value of k is _____

The equation of the asymptote to the graph of $y = 2 \times 0.5^x - 1$ is _____ [2]

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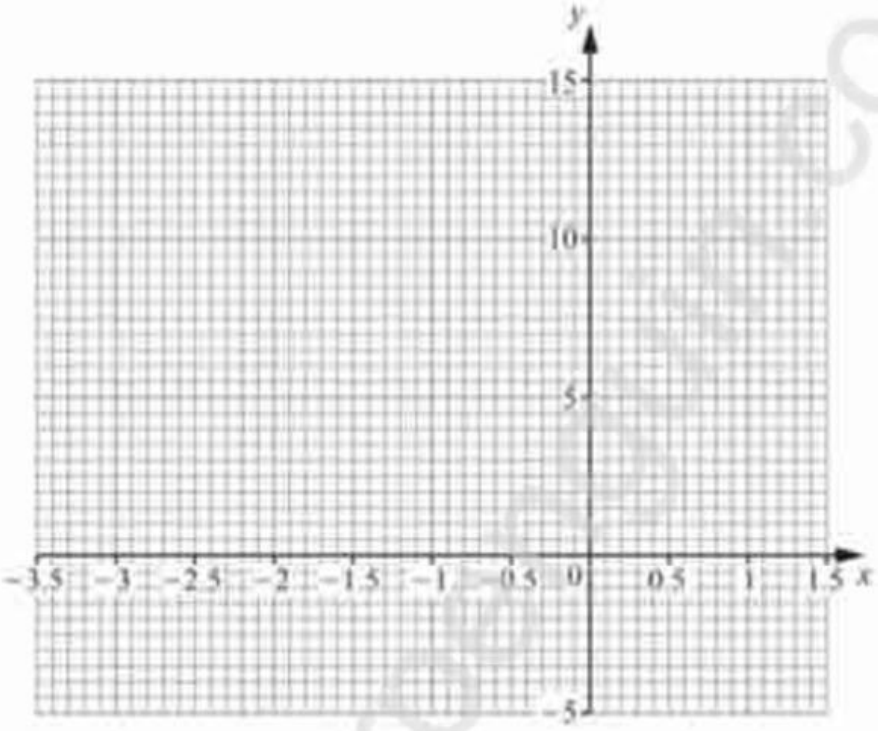
LIVEWORKSHEETS

2 The table shows some values for $y = x^3 + 3x^2 + 2$.

x	−3.5	−3	−2.5	−2	−1.5	−1	−0.5	0	0.5	1	1.5
y	−4.1		5.1	6	5.4	4	2.6		2.9		12.1

(a) Complete the table. [3]

(b) On the grid, draw the graph of $y = x^3 + 3x^2 + 2$ for $-3.5 \leqslant x \leqslant 1.5$.



[4]

(c) Use your graph to solve the equation $x^3 + 3x^2 + 2 = 0$ for $-3.5 \leqslant x \leqslant 1.5$.

$x =$ ..... [1]

(d) By drawing a suitable straight line, solve the equation $x^3 + 3x^2 + 2x + 2 = 0$ for $-3.5 \leqslant x \leqslant 1.5$.

$x =$ ..... [2]

(e) For $-3.5 \leqslant x \leqslant 1.5$, the equation $x^3 + 3x^2 + 2 = k$ has three solutions and k is an integer.

Write down a possible value of k.

$k =$ ..... [1]

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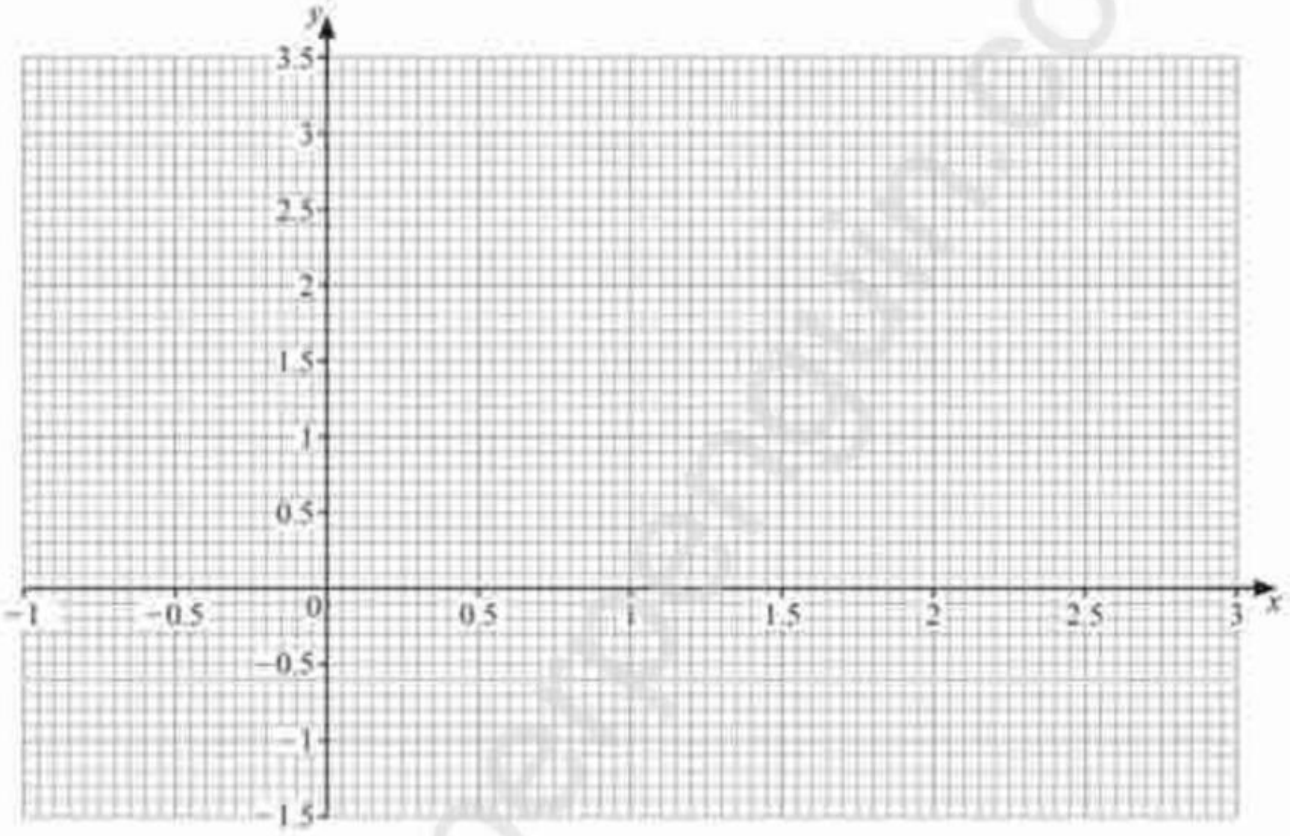
LIVEWORKSHEETS

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

x	-1	-0.5	0	0.5	1	1.5	2	2.5	3
y		2.125	3	2.375	1		-1	-0.125	

(a) Complete the table. [3]

(b) On the grid, draw the graph of $y = x^3 - 3x^2 + 3$ for $-1 \leqslant x \leqslant 3$.



[4]

(c) By drawing a suitable straight line on the grid, solve the equation $x^3 - 3x^2 + x + 1 = 0$.

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