

# GRAPHS OF POLYNOMIALS

[ESTIMATED TIME: 50 minutes]

# GCSE

(+ IGCSE) EXAM QUESTION PRACTICE

1.

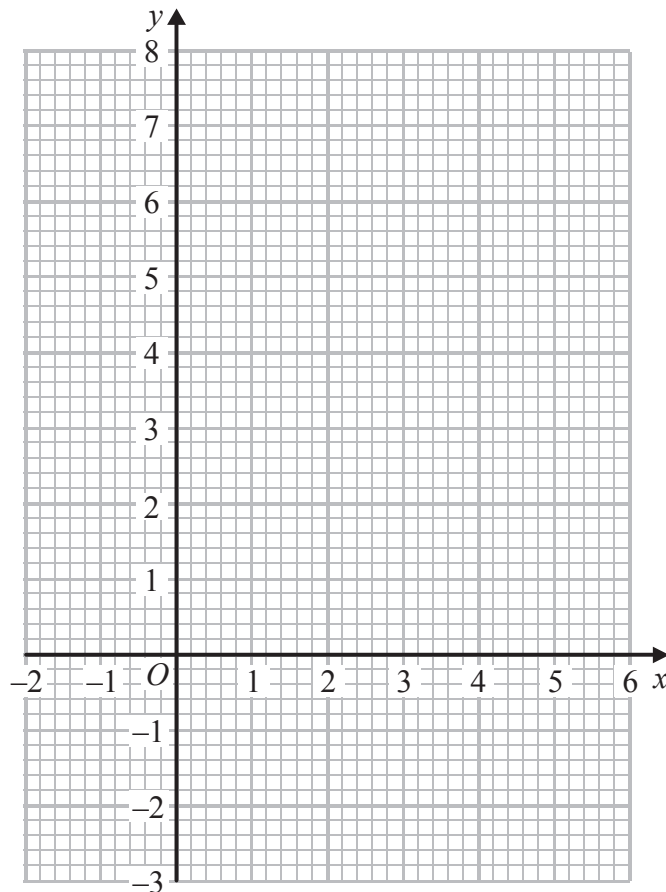
[4 marks]

(a) Complete the table of values for  $y = x^2 - 4x + 2$

$x$	-1	0	1	2	3	4	5
$y$		2		-2	-1		

(2)

(b) On the grid, draw the graph of  $y = x^2 - 4x + 2$  for all values of  $x$  from -1 to 5



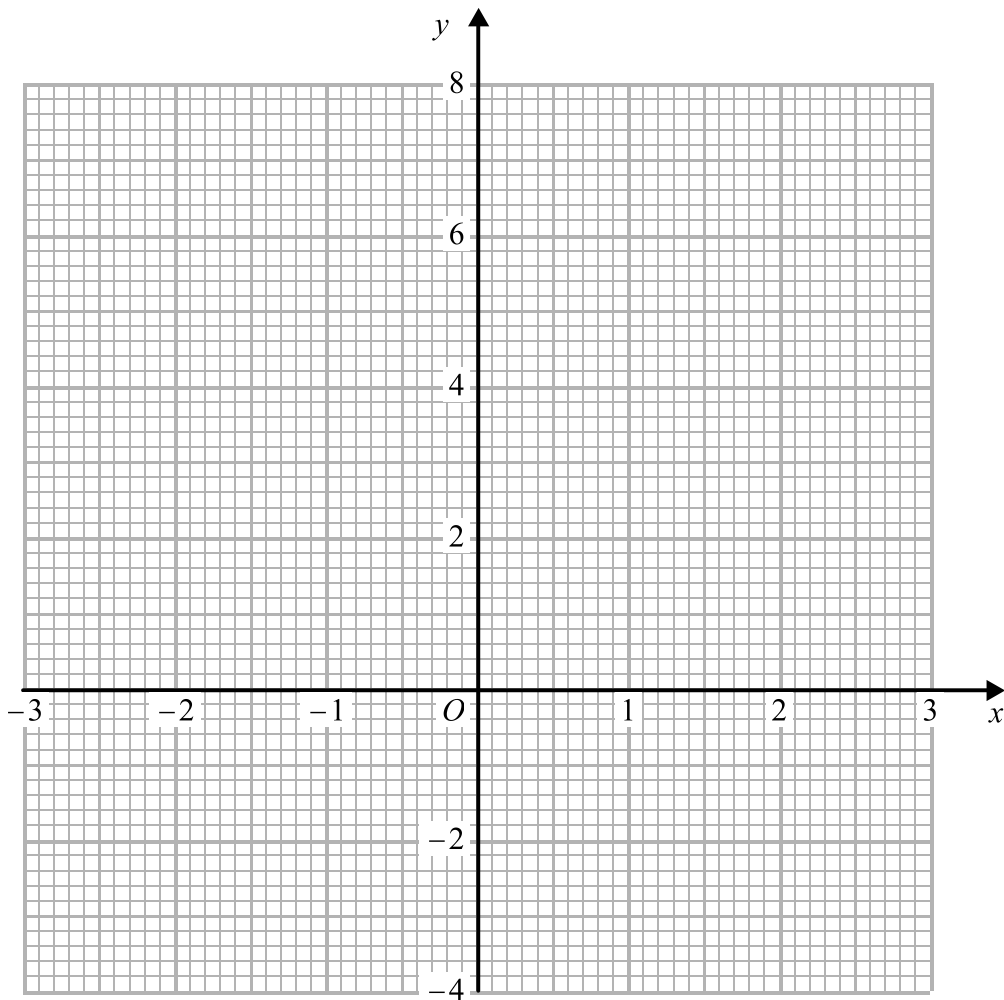
(2)

(a) Complete the table of values for  $y = x^2 - 2$

$x$	-3	-2	-1	0	1	2	3
$y$			-1				

(2)

(b) On the grid, draw the graph of  $y = x^2 - 2$



(2)

For  $y = x^3 - 6x^2 + 20$

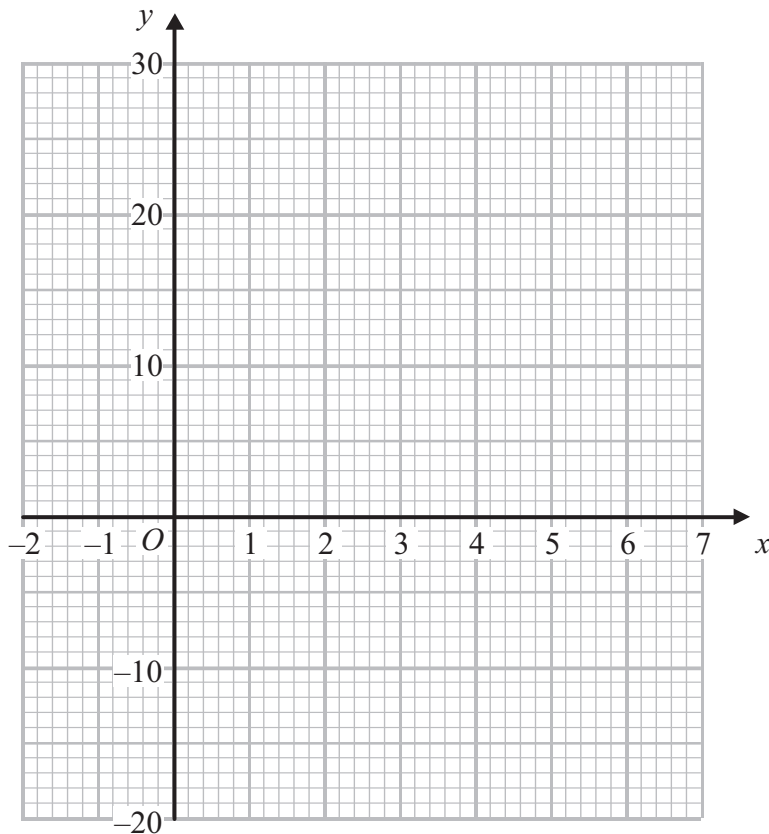
(a) (i) show that  $y = 4$  when  $x = 2$

(ii) complete the table of values

$x$	-1	0	1	2	3	4	5	6
$y$		20	15		-7	-12		20

(2)

(b) On the grid, draw the graph of  $y = x^3 - 6x^2 + 20$  for values of  $x$  from -1 to 6



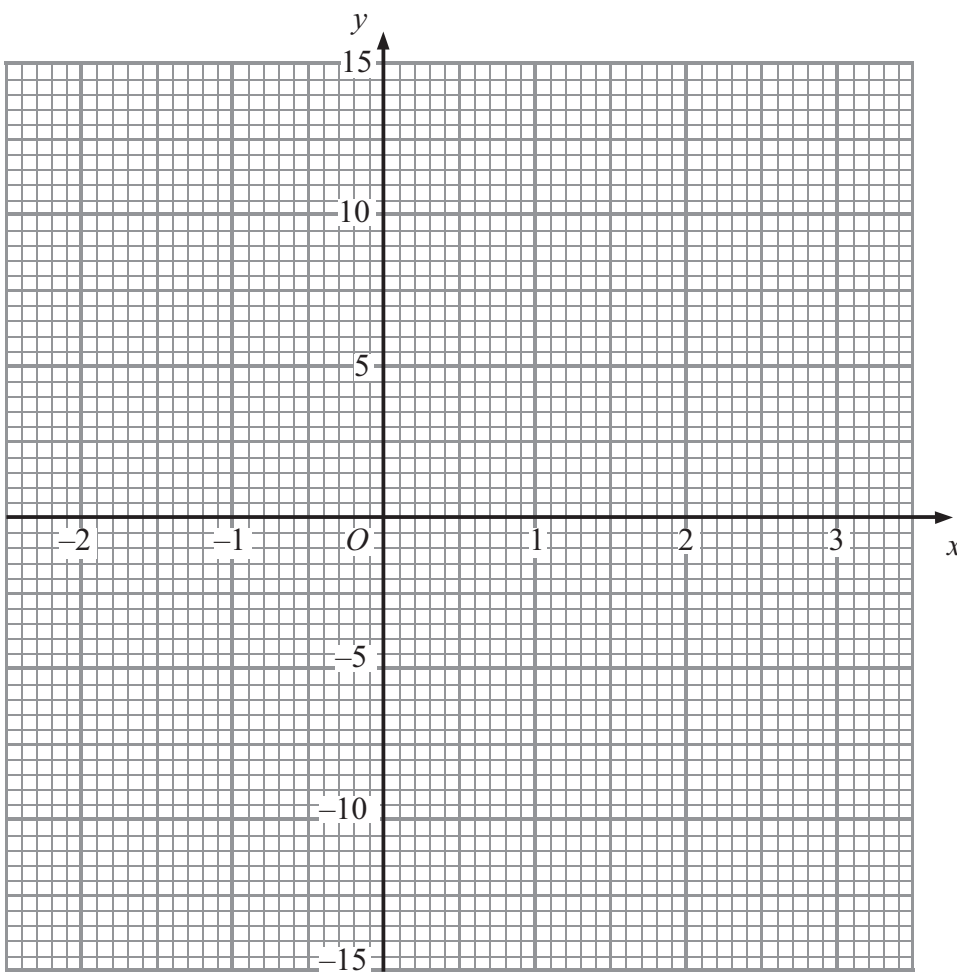
(2)

(a) Complete the table of values for  $y = x^3 - 3x^2 + 12$

$x$	-2	-1	0	1	2	3
$y$		8				

(2)

(b) On the grid, draw the graph of  $y = x^3 - 3x^2 + 12$



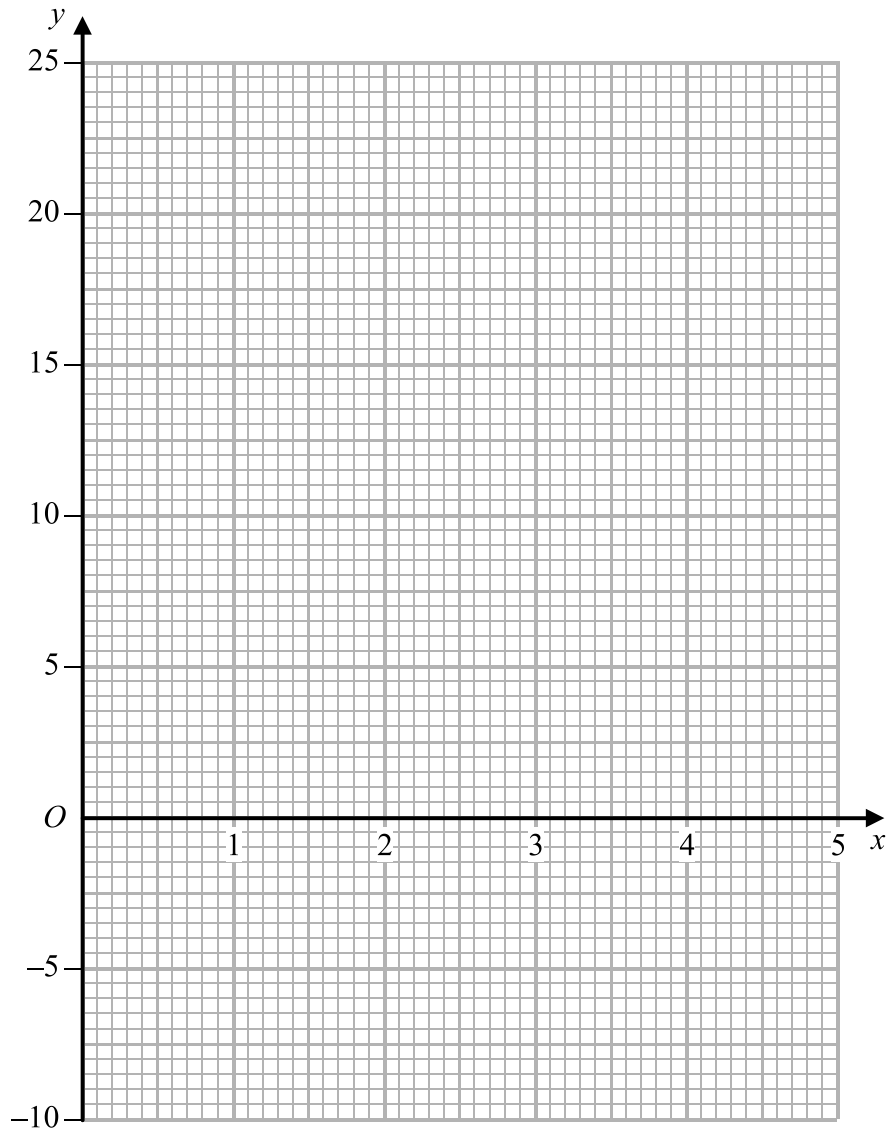
(2)

(a) Complete the table of values for  $y = x^2 - \frac{3}{x}$

$x$	0.5	1	1.5	2	3	4	5
$y$	-5.75	-2					24.4

(2)

(b) On the grid, draw the graph of  $y = x^2 - \frac{3}{x}$  for  $0.5 \leq x \leq 5$



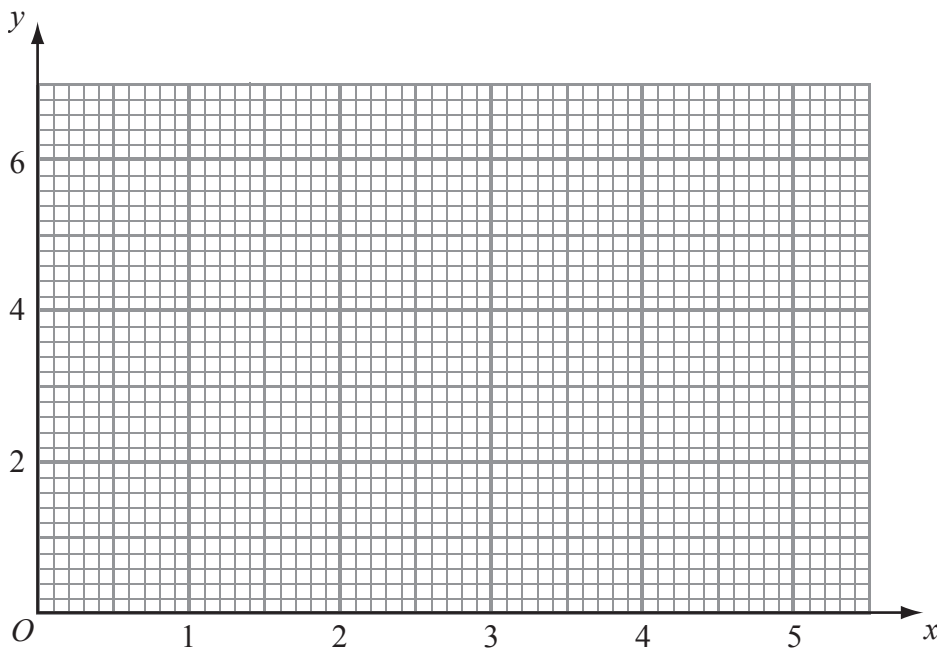
(2)

(a) Complete the table of values for  $y = x + \frac{1}{x^2}$

$x$	0.5	1	1.5	2	3	4	5
$y$		2		2.3			5.0

(2)

(b) On the grid, draw the graph of  $y = x + \frac{1}{x^2}$  for  $0.5 \leq x \leq 5$



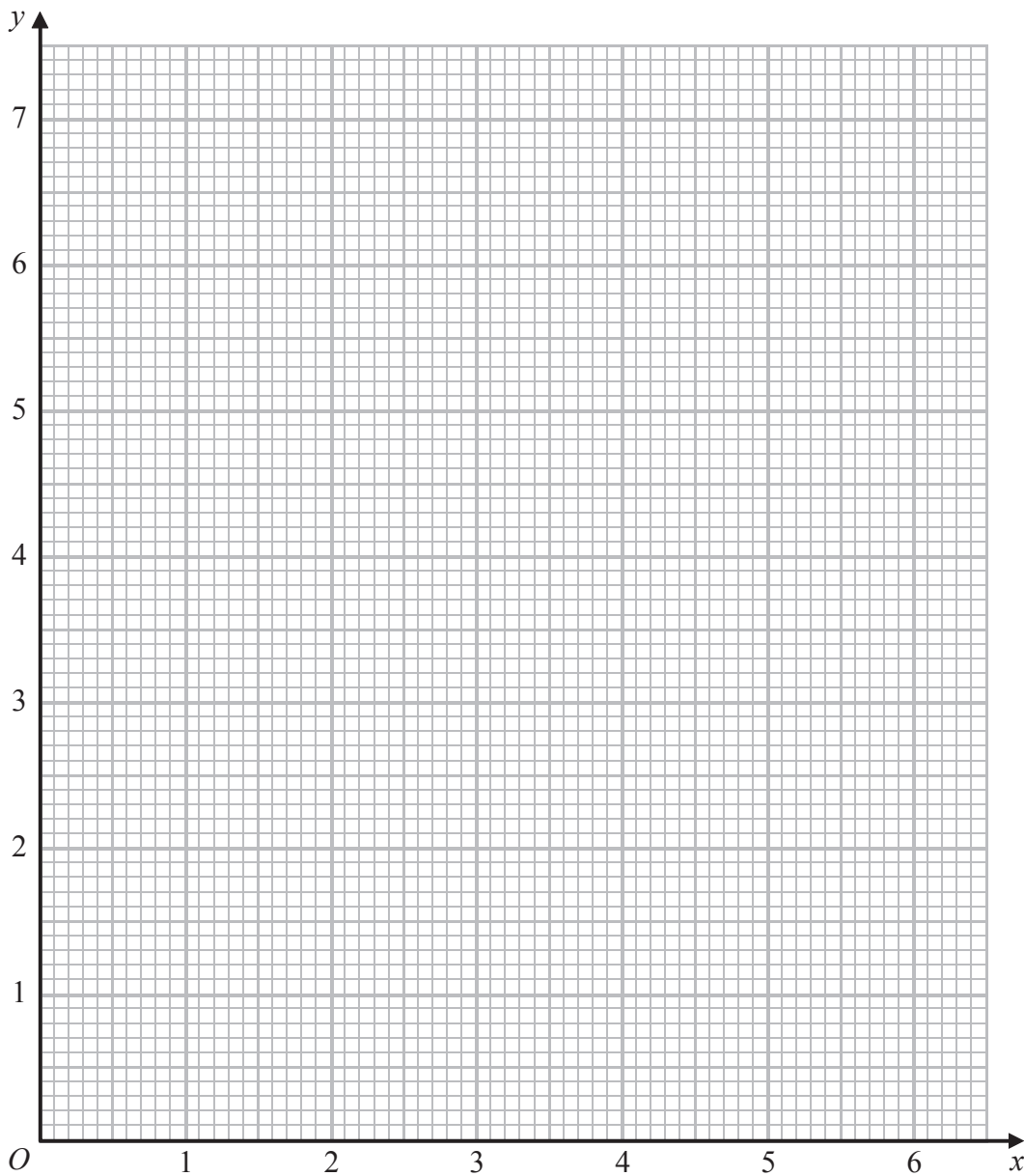
(2)

(a) Complete the table of values for  $y = \frac{1}{2}\left(x + \frac{9}{x}\right)$

$x$	1	1.5	2	3	4	5	6
$y$	5		3.25		3.125	3.4	

(2)

(b) Draw the graph of  $y = \frac{1}{2}\left(x + \frac{9}{x}\right)$  for values of  $x$  from 1 to 6



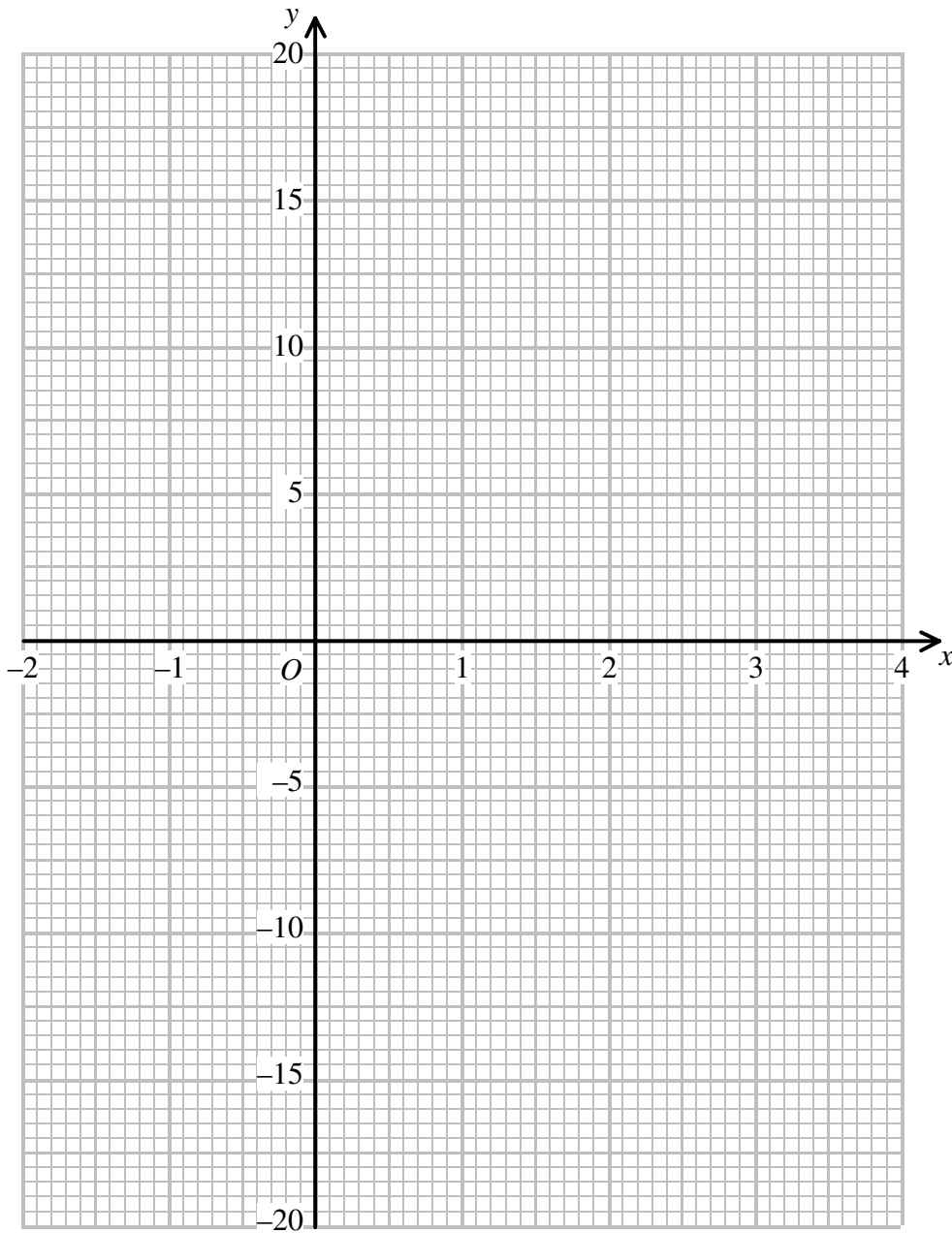
(2)

(a) Complete the table of values for  $y = x^3 - 3x^2 + 2$

$x$	-2	-1	0	1	2	3	4
$y$		-2					

(2)

(b) On the grid, draw the graph of  $y = x^3 - 3x^2 + 2$



(2)

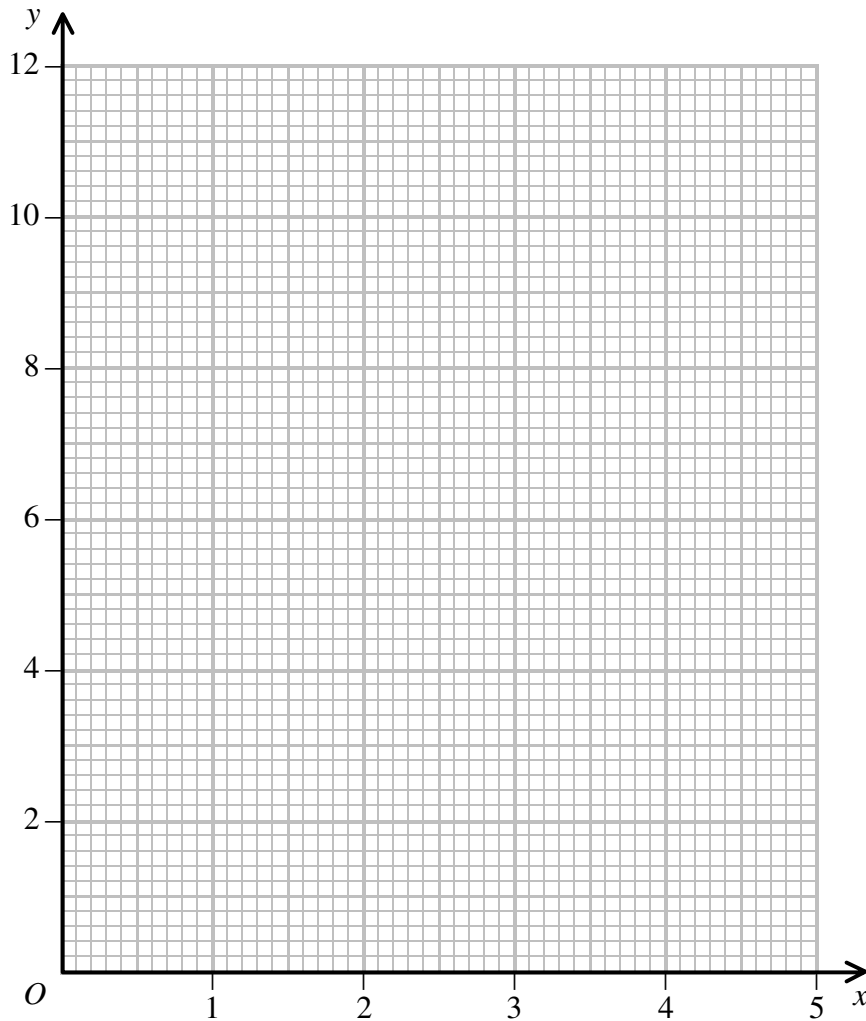


(a) Complete the table of values for  $y = x + \frac{2}{x}$

$x$	0.2	0.4	0.6	0.8	1	1.5	2	3	4	5
$y$	10.2		3.9		3	2.8		3.7		5.2

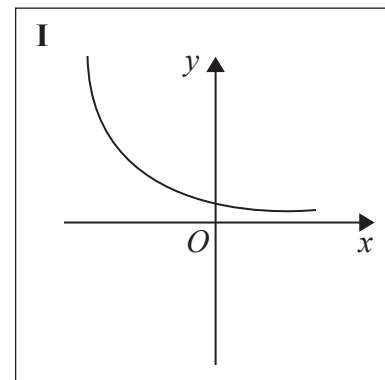
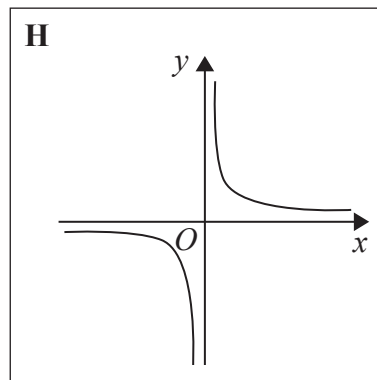
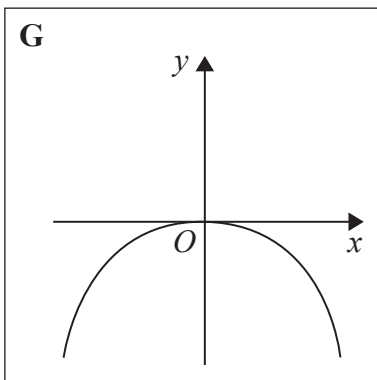
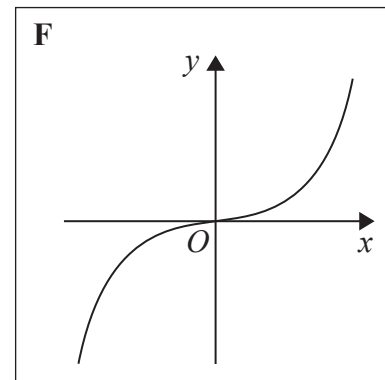
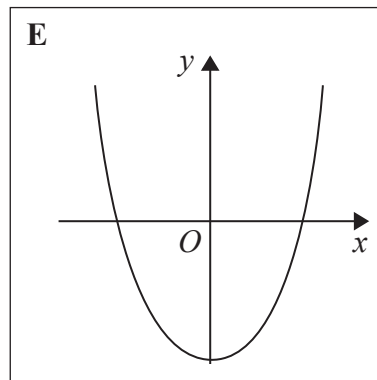
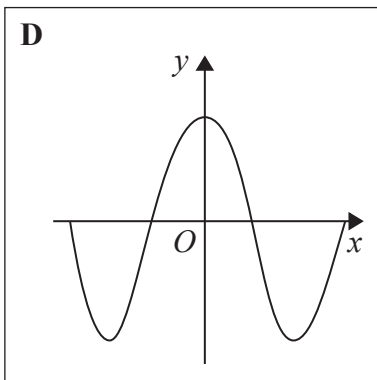
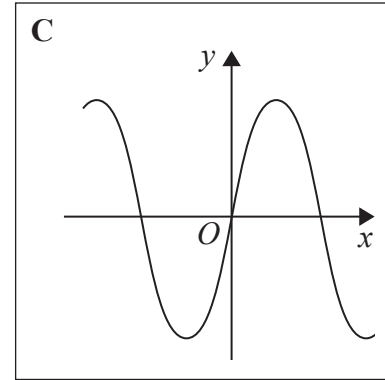
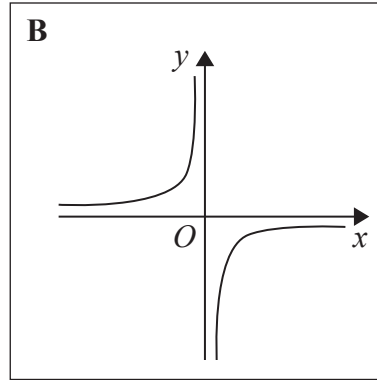
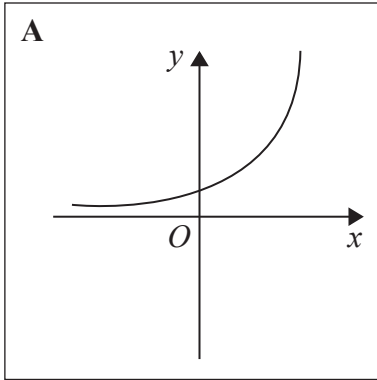
(2)

(b) On the grid, draw the graph of  $y = x + \frac{2}{x}$  for  $0.2 \leq x \leq 5$



(2)

Here are some graphs.



In the table below, match each equation with the letter of its graph.

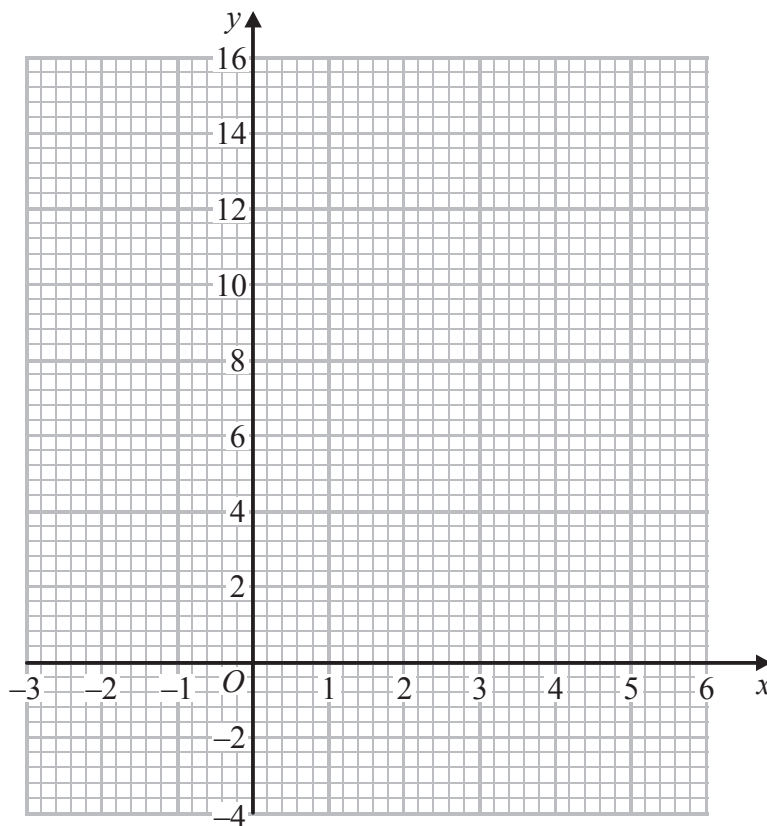
Equation	Graph
$y = \sin x$	
$y = x^3 + 4x$	
$y = 2^x$	
$y = \frac{4}{x}$	

(a) Complete the table of values for  $y = x^2 - 4x + 2$

$x$	-2	-1	0	1	2	3	4	5
$y$	14		2			-1	2	

(2)

(b) On the grid, draw the graph of  $y = x^2 - 4x + 2$  for values of  $x$  from -2 to 5



(2)

The point  $P(k, 4)$  where  $k > 0$  lies on the graph of  $y = x^2 - 4x + 2$

(c) Use your graph to find an estimate for the value of  $k$ .

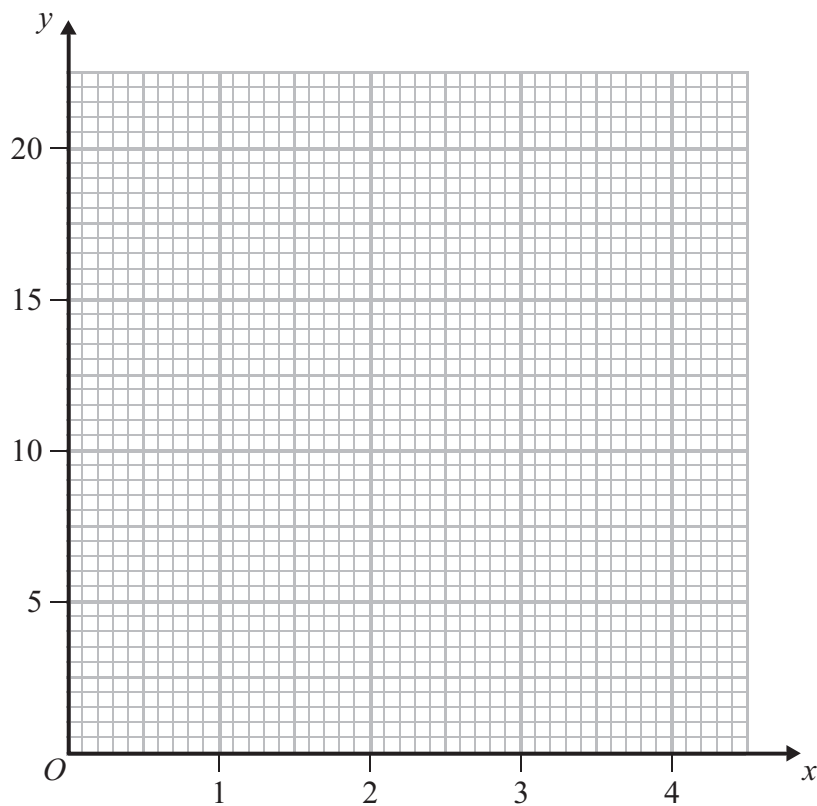
.....  
(1)

(a) Complete the table of values for  $y = x^2 + \frac{2}{x}$

$x$	0.1	0.2	0.5	1	1.5	2	3	4
$y$	20.01	10.04		3	3.58	5	9.67	

(1)

(b) On the grid, draw the graph of  $y = x^2 + \frac{2}{x}$  for  $0.1 \leq x \leq 4$



(2)

(c) Use your graph to find estimates for the solutions of  $x^2 + \frac{2}{x} = 14$  in the interval  $0.1 \leq x \leq 4$

Give your estimates correct to 1 decimal place.

.....  
(2)