Name:

Exam Style Questions

Drawing Quadratics

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

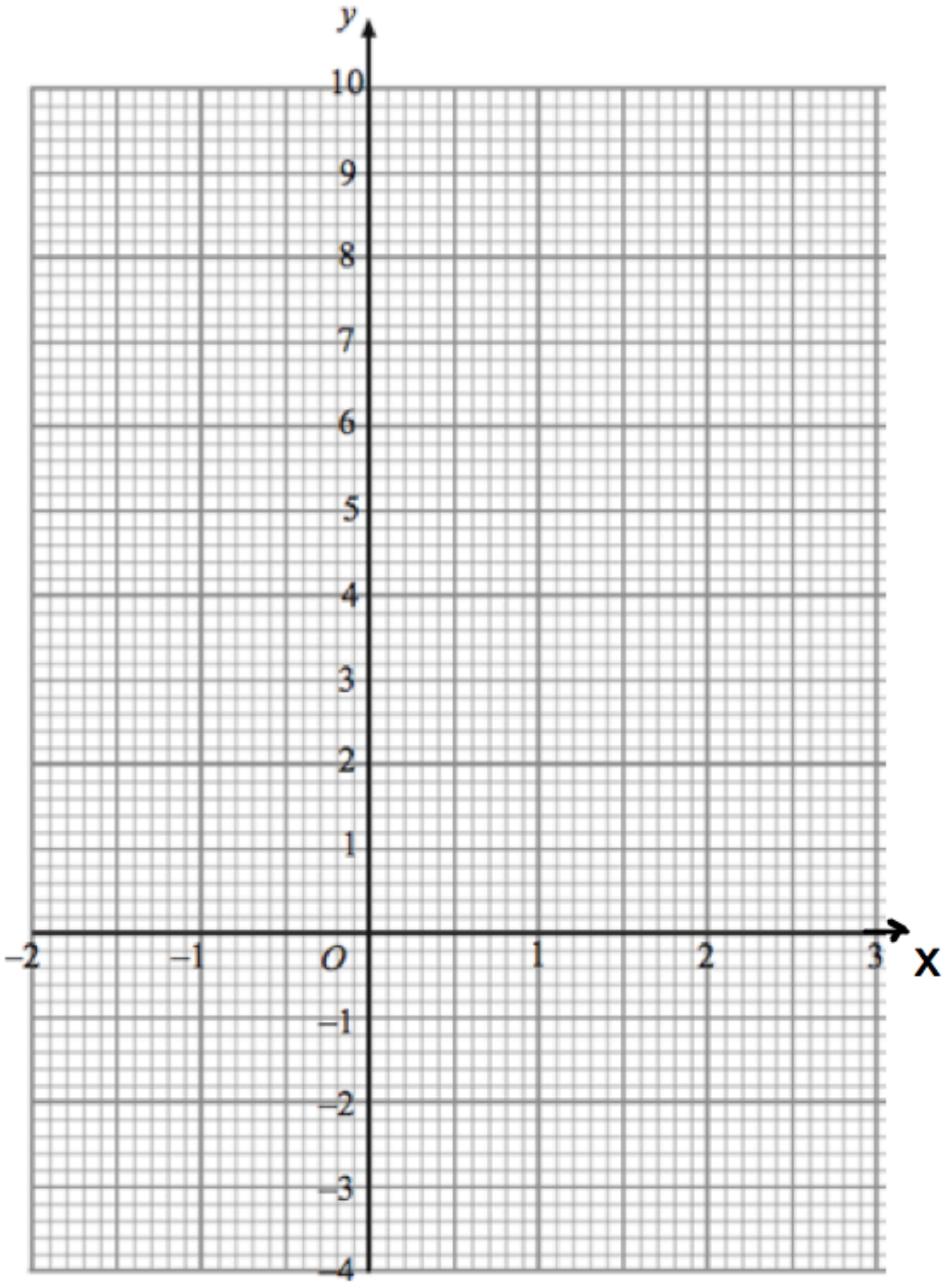
Video 264

1. (a) Complete the table of values for $y = x^2 - 1$

x	–2	–1	0	1	2	3
y	3		-1		3	

(2)

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



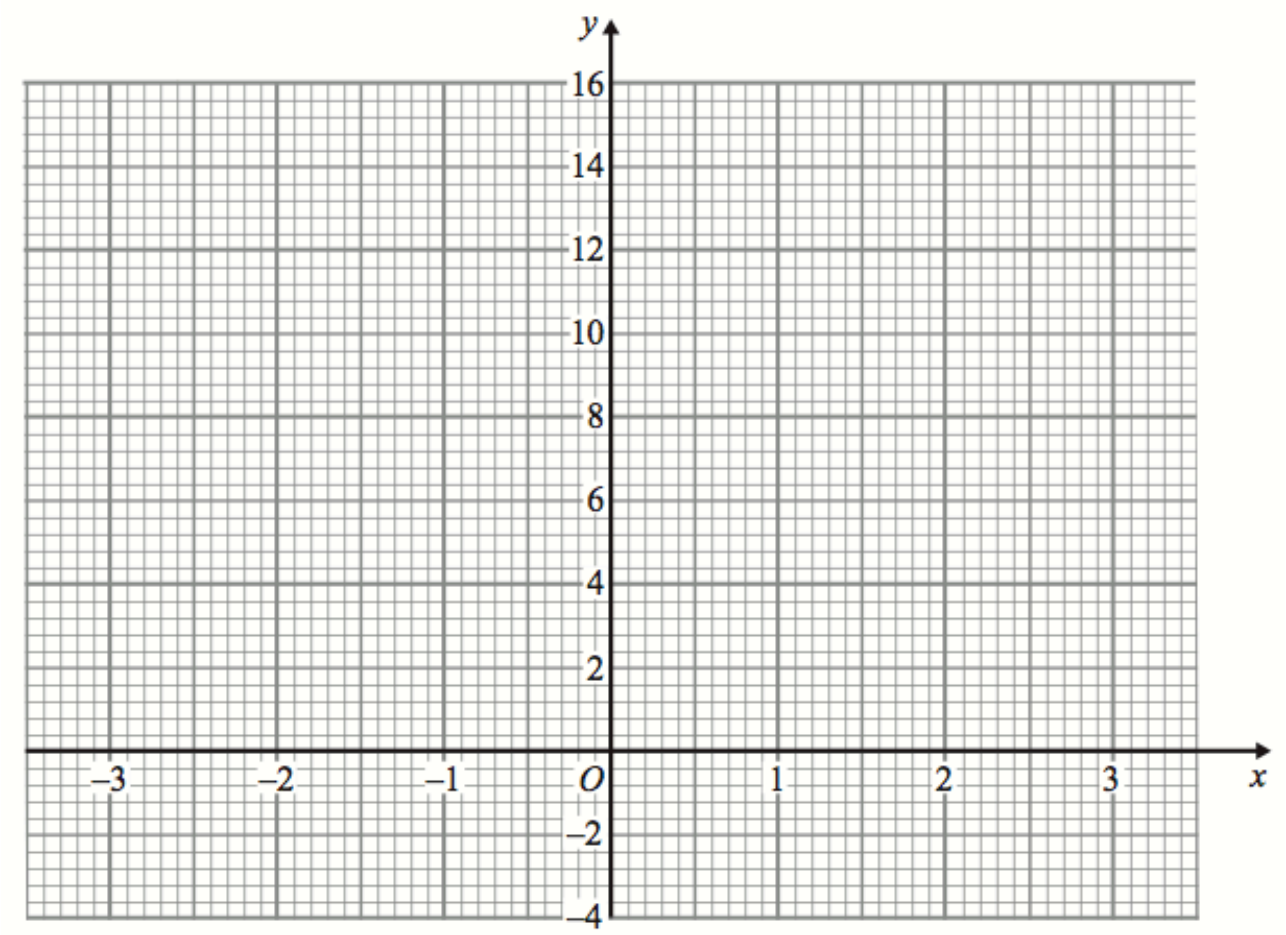
(2)

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

x	-3	-2	-1	0	1	2	3
y	6		0		2	6	

(2)

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



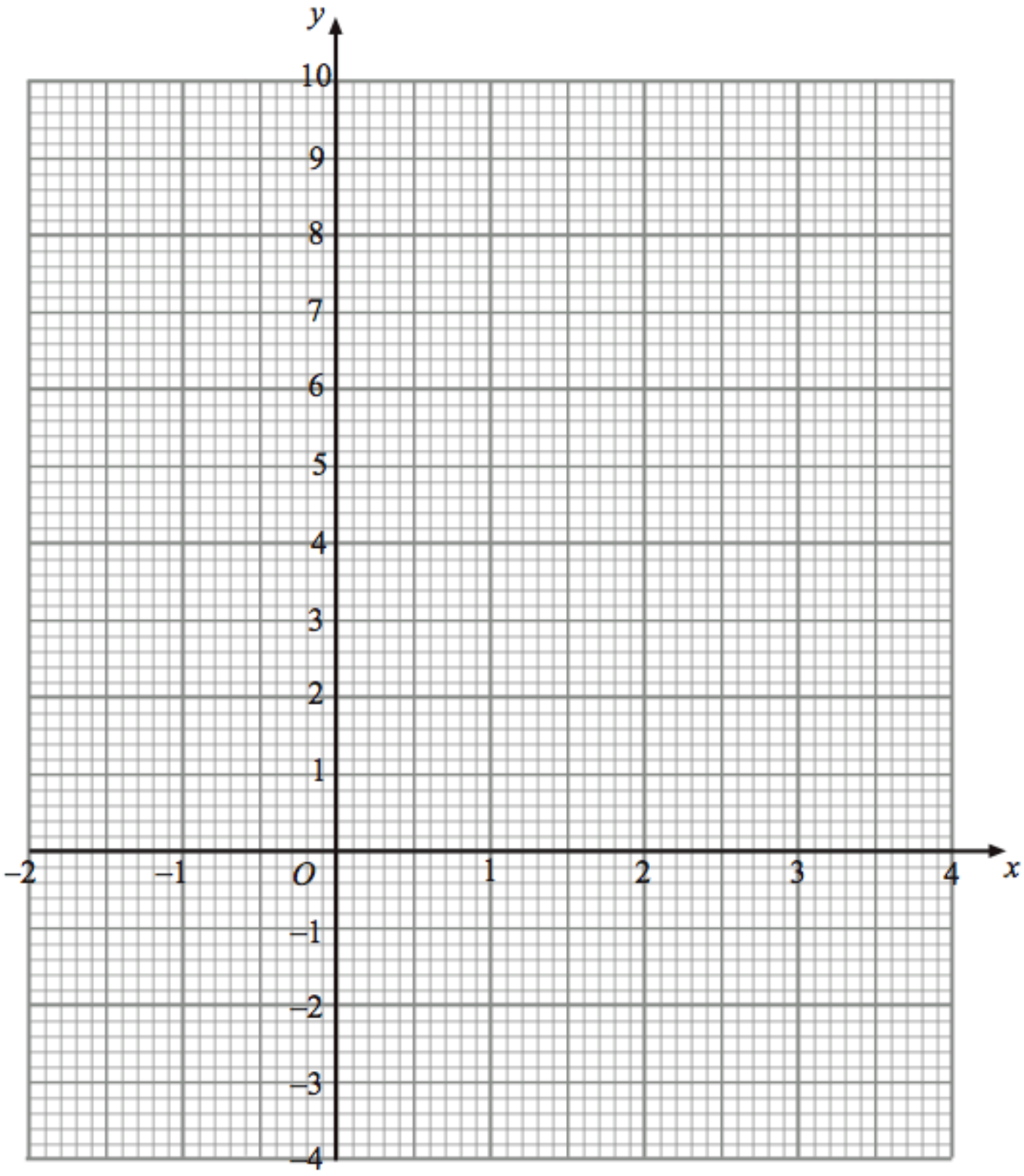
(2)

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

x	–2	–1	0	1	2	3	4
y	10		0	-2		0	

(2)

(b) On the grid, draw the graph of $y = x^2 - 3x$ for the values of x from -2 to 4.



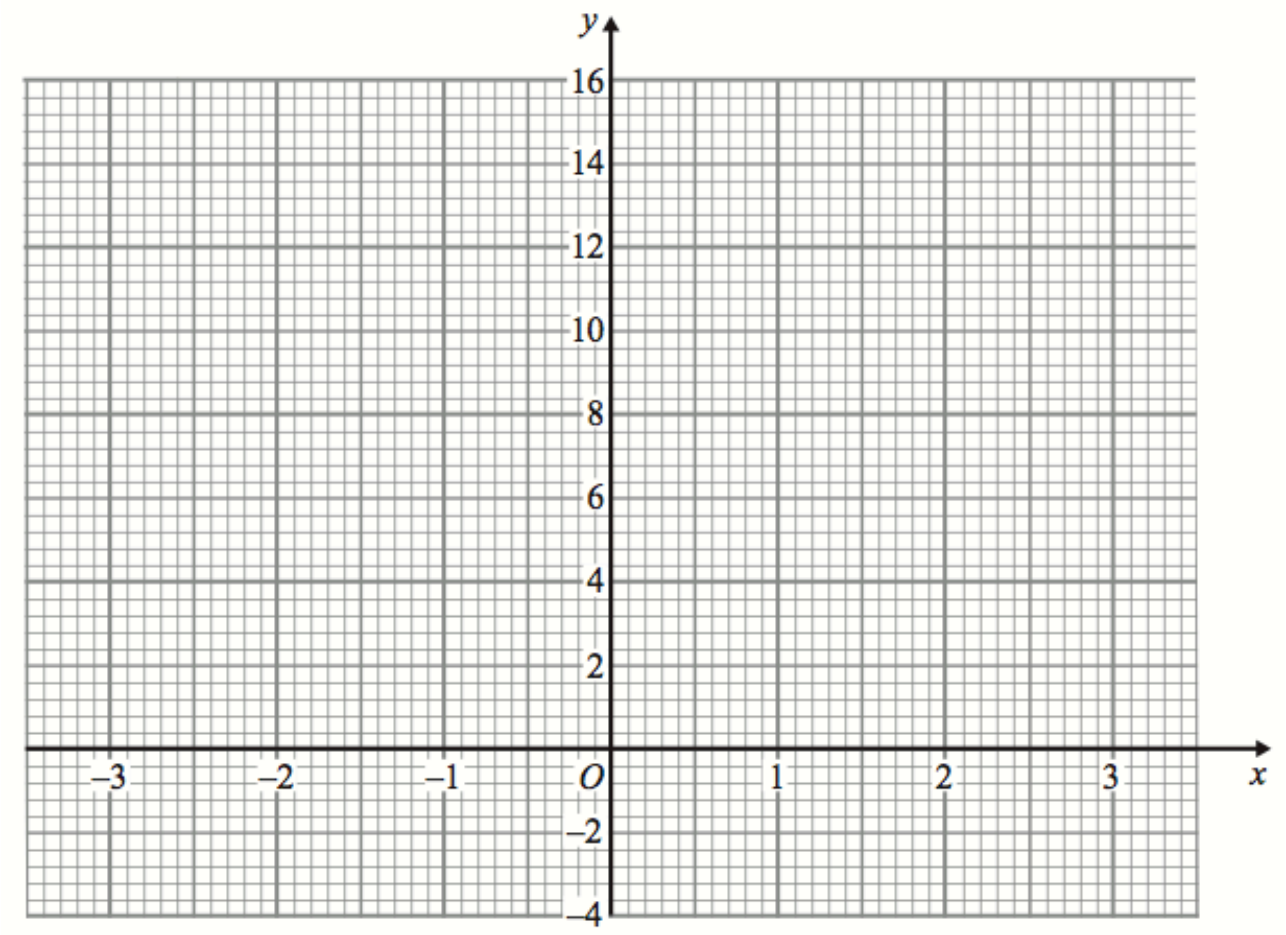
(2)

4. (a) Complete the table of values for $y = x^2 + 2x + 1$

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

(2)

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



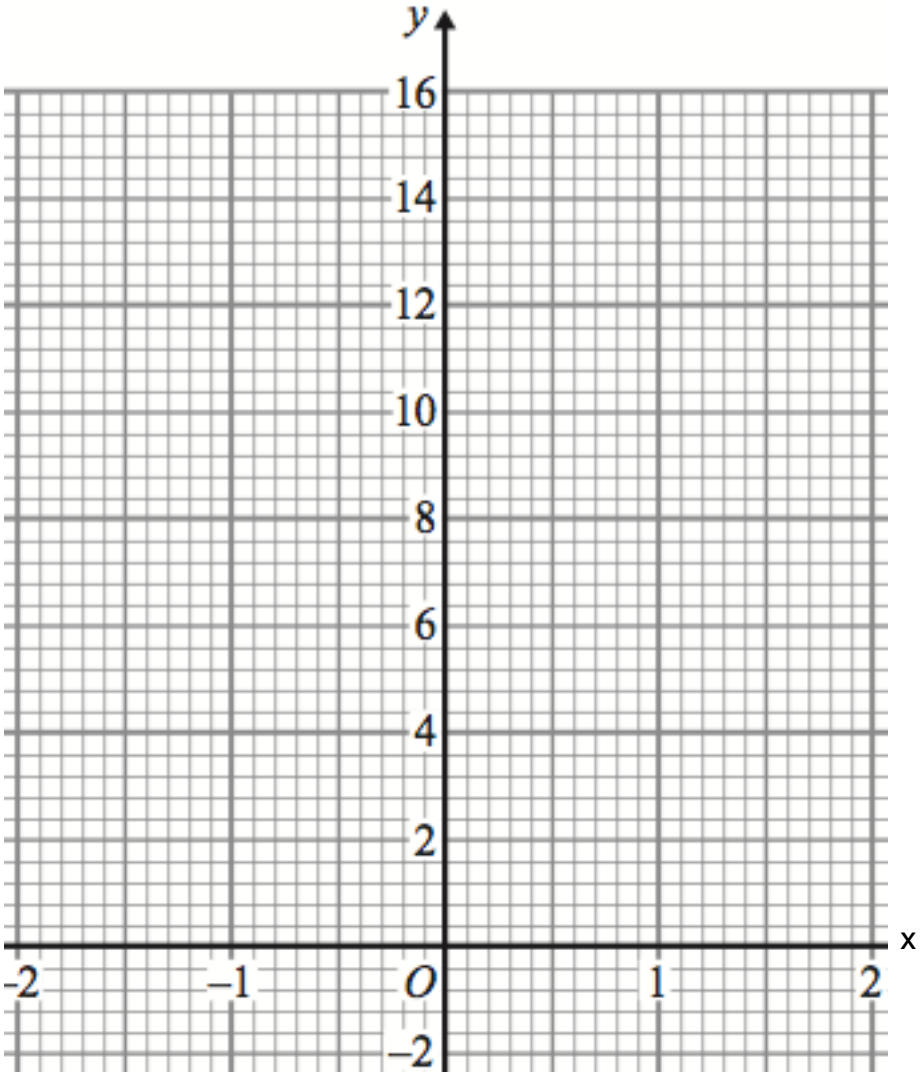
(2)

5. (a) Complete the table of values for $y = 3x^2 + 1$

x	-2	-1	0	1	2
y	13		1	4	

(2)

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



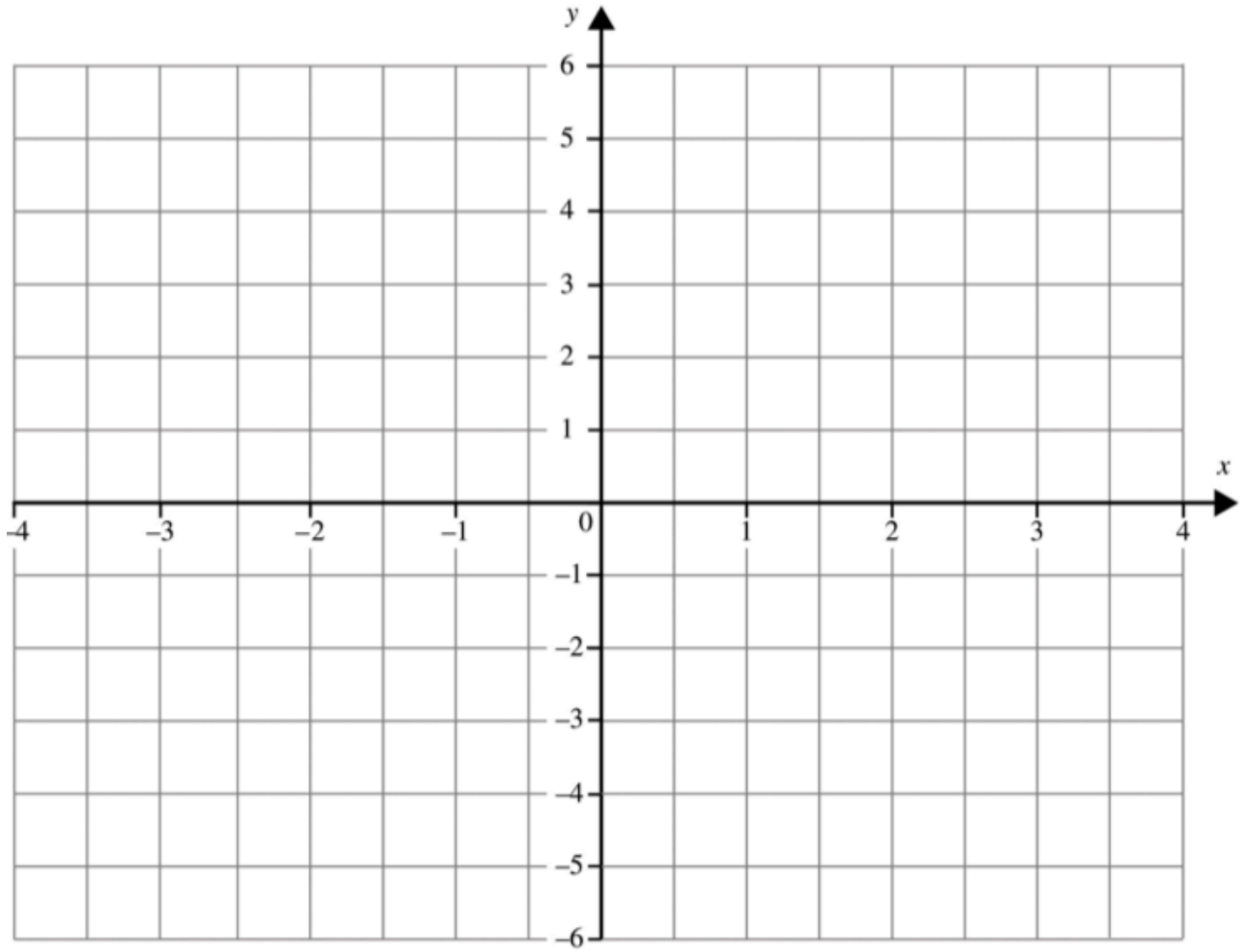
(2)

6. (a) Complete the table for the graph $y = 4 - x^2$

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

(2)

(b) Hence draw the graph on the grid.



(2)

Name:

Exam Style Questions

Drawing Quadratics

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

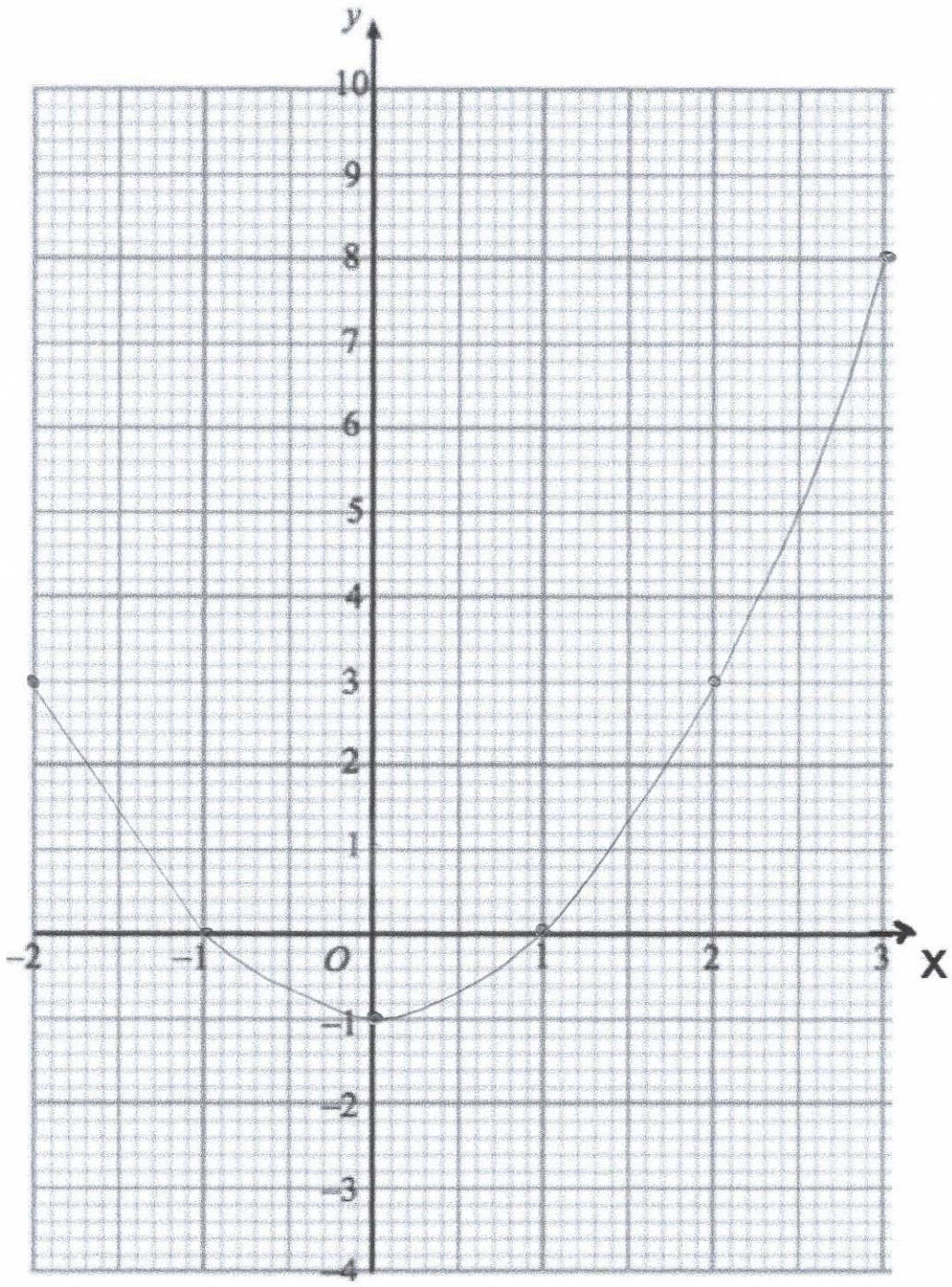
Video 264

1. (a) Complete the table of values for $y = x^2 - 1$

x	–2	–1	0	1	2	3
y	3	0	-1	0	3	8

(2)

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



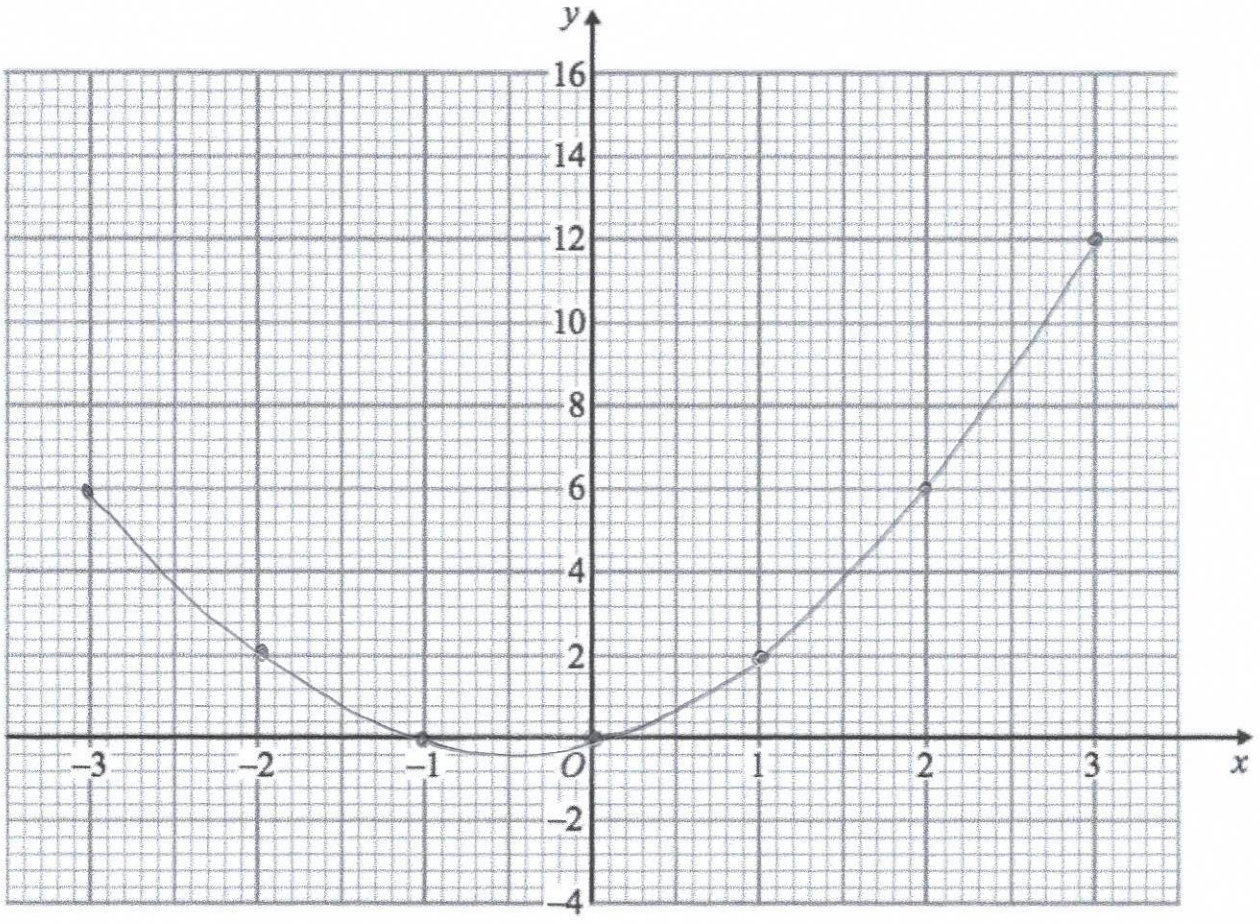
(2)

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

x	-3	-2	-1	0	1	2	3
y	6	2	0	0	2	6	12

(2)

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



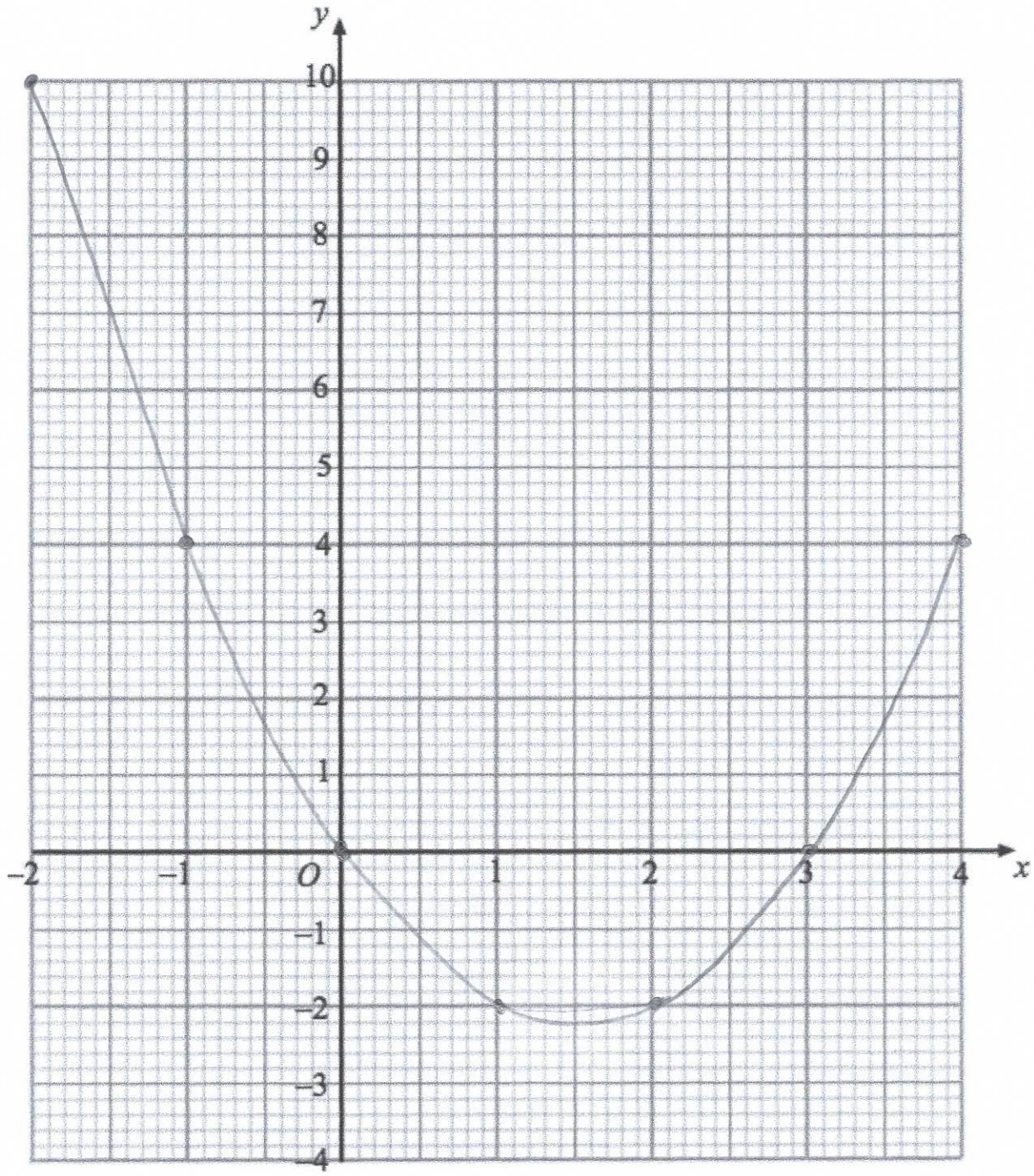
(2)

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

x	–2	–1	0	1	2	3	4
y	10	4	0	-2	-2	0	4

(2)

(b) On the grid, draw the graph of $y = x^2 - 3x$ for the values of x from -2 to 4.



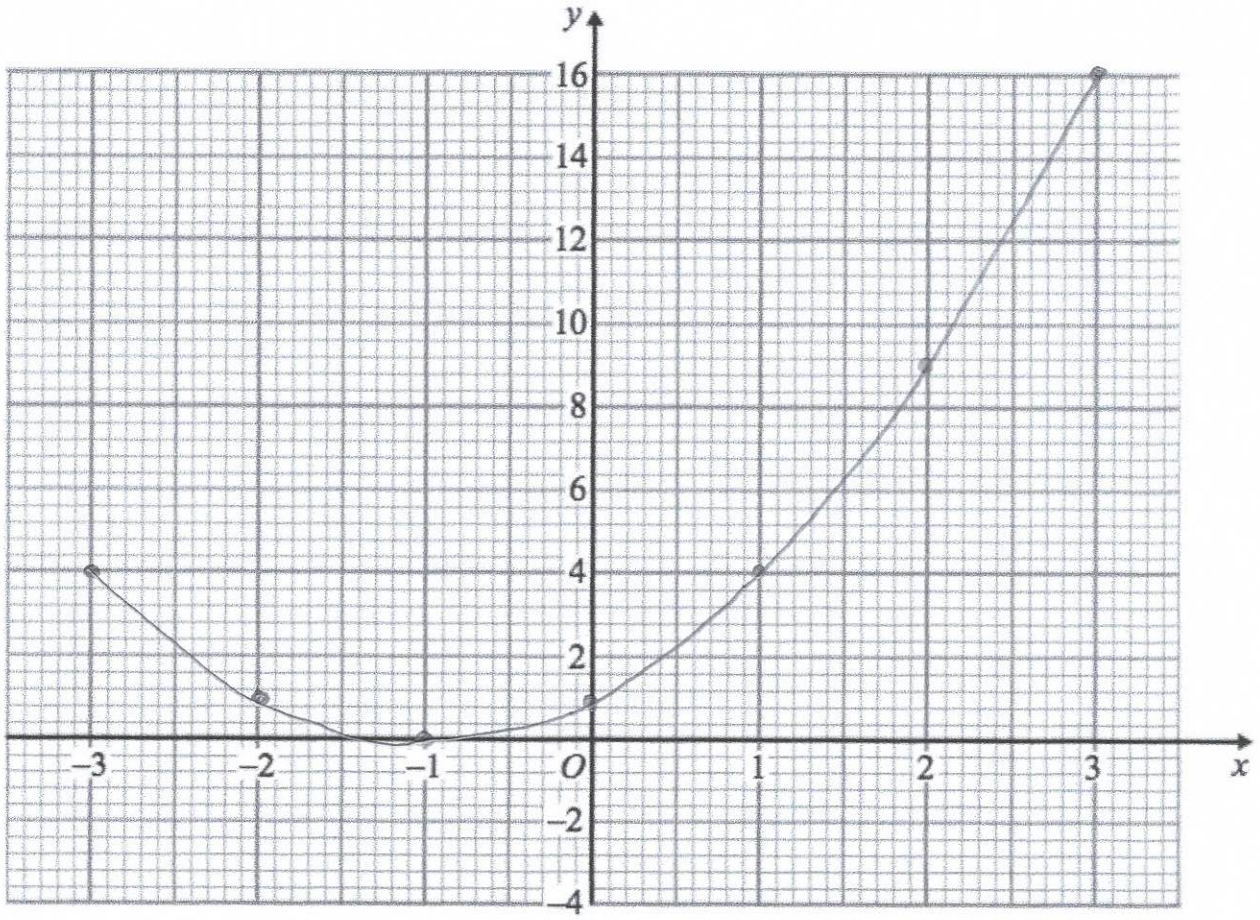
(2)

4. (a) Complete the table of values for $y = x^2 + 2x + 1$

x	-3	-2	-1	0	1	2	3
y	4	1	0	1	4	9	16

(2)

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



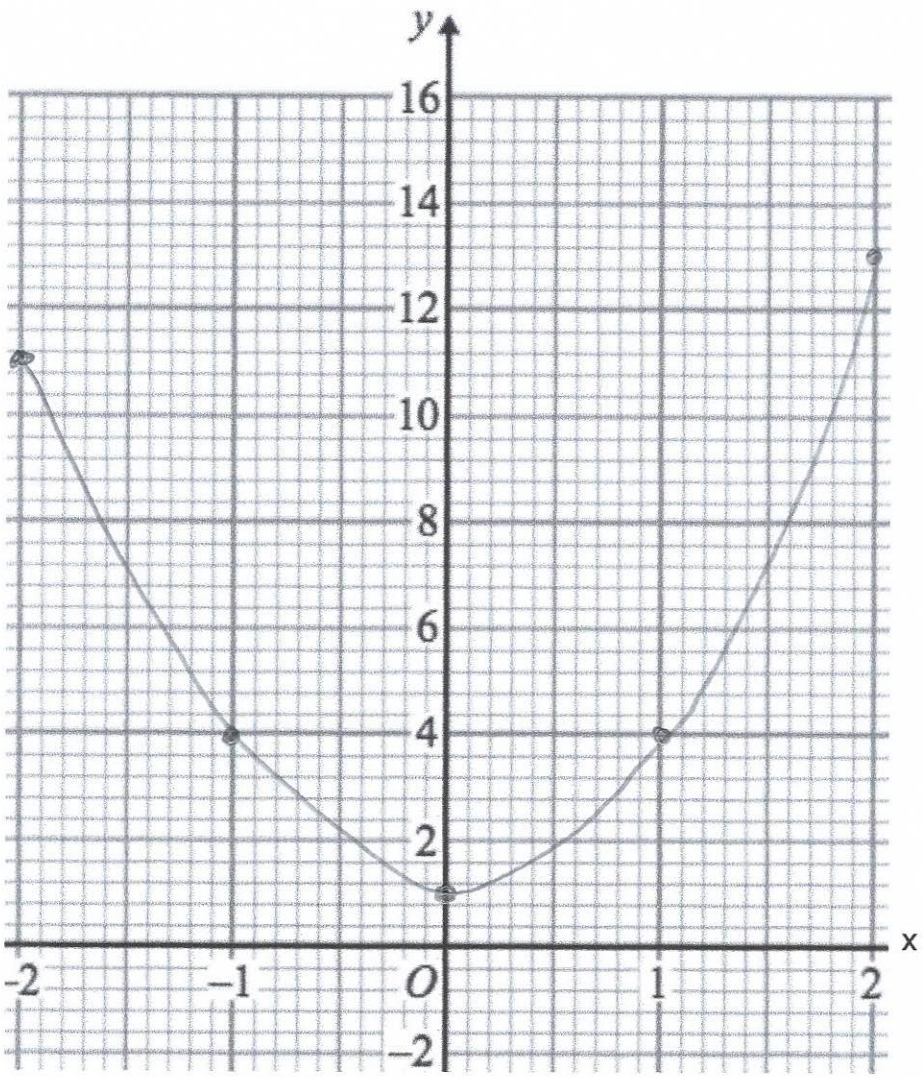
(2)

5. (a) Complete the table of values for $y = 3x^2 + 1$

x	-2	-1	0	1	2
y	13	4	1	4	13

(2)

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



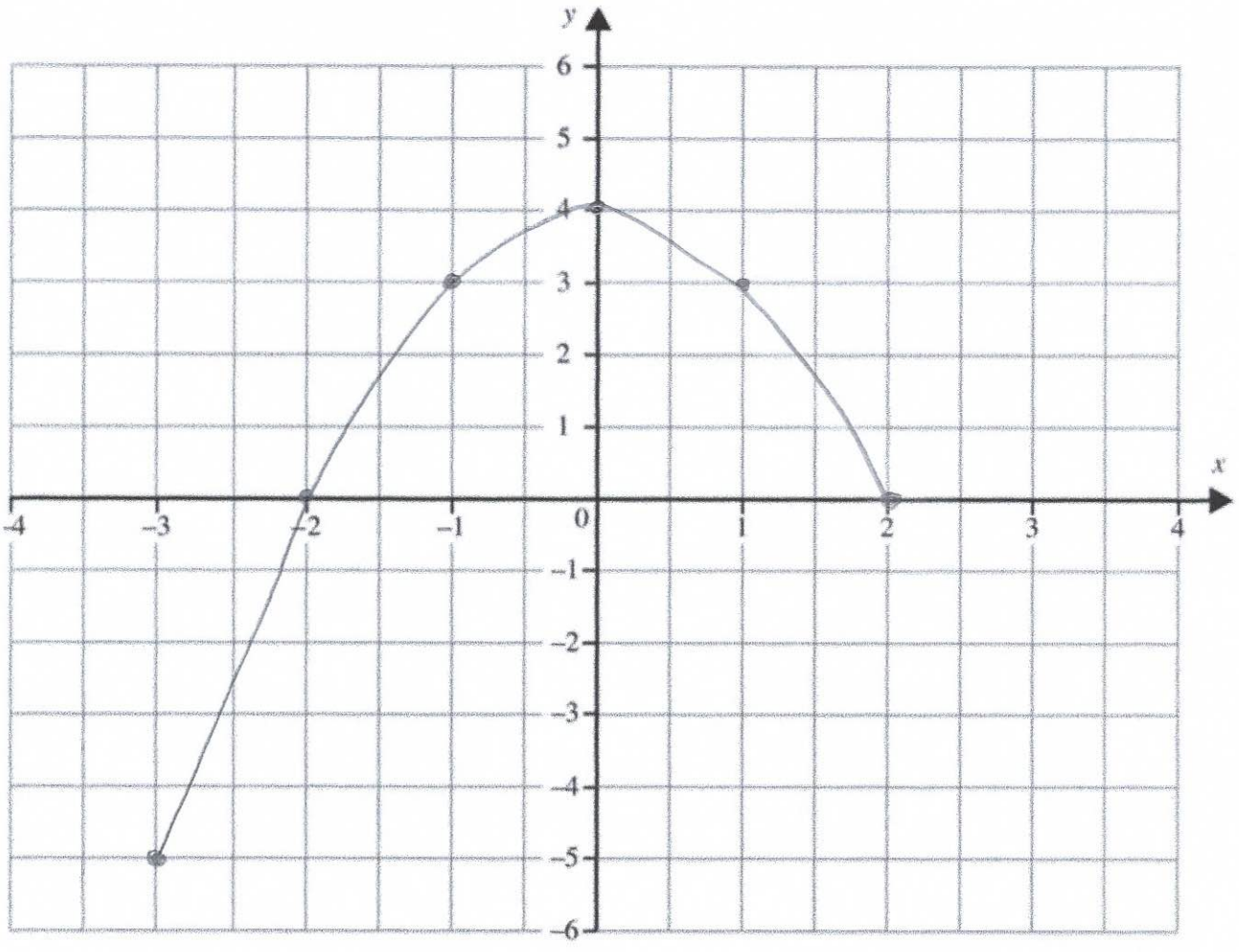
(2)

6. (a) Complete the table for the graph $y = 4 - x^2$

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

(2)

(b) Hence draw the graph on the grid.



(2)

Solving Quadratics Graphically

Video 267c on Corbettmaths

Examples

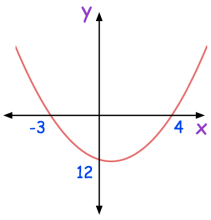
Workout

Click here

Scan here

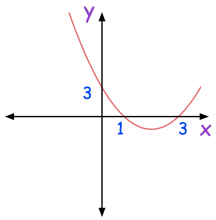
Question 1: Using the graphs below, solve each equation.

$y = x^2 - x - 12$



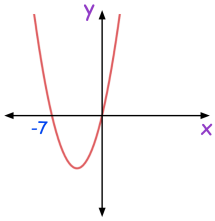
(a) Solve $x^2 - x - 12 = 0$

$y = x^2 - 4x + 3$



(b) Solve $x^2 - 4x + 3 = 0$

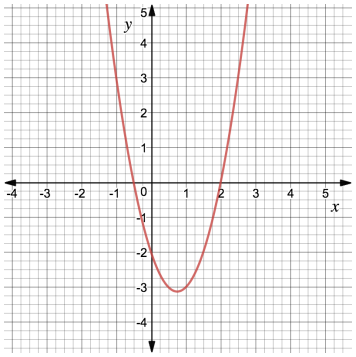
$y = x^2 + 7x$



(c) Solve $x^2 + 7x = 0$

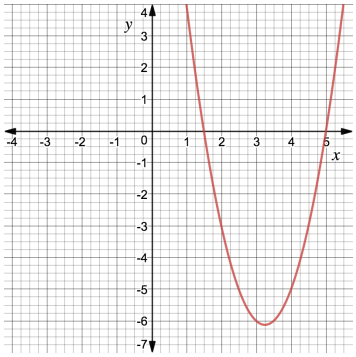
Question 2: Using the graphs below, solve each equation

$y = 2x^2 - 3x - 2$



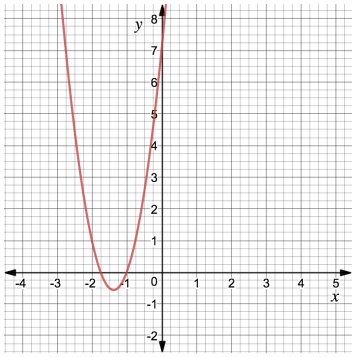
(a) Solve $2x^2 - 3x - 2 = 0$

$y = 2x^2 - 13x + 15$



(b) Solve $2x^2 - 13x + 15 = 0$

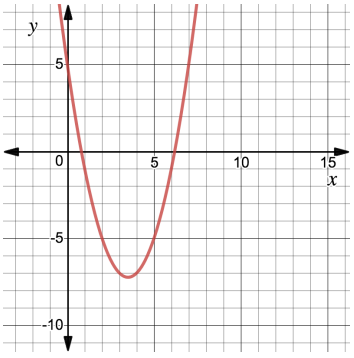
$y = 4x^2 + 11x + 7$



(c) Solve $4x^2 + 11x + 7 = 0$

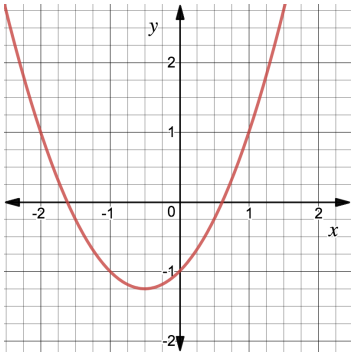
Question 3: Using the graphs, find estimates of the solutions to the following equations

$y = x^2 - 7x + 5$



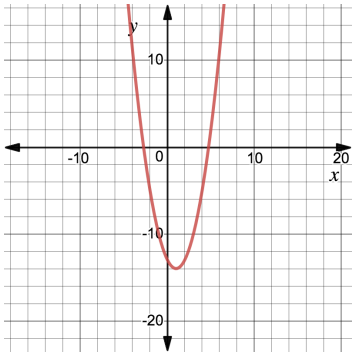
(a) $x^2 - 7x + 5 = 0$

$y = x^2 + x - 1$



(b) $x^2 + x - 1 = 0$

$y = x^2 - 2x - 13$



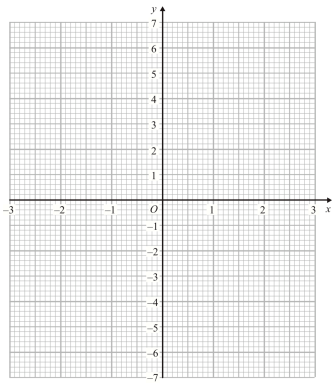
(c) $x^2 - 2x - 13 = 0$

Solving Quadratics Graphically

Video 267c on Corbettmaths

Question 4: (a) Complete the table of values of $y = x^2 - x - 5$

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



(b) On a copy of the grid, draw the graph of $y = x^2 - x - 5$ for the value of x from -3 to 3

(c) Use your graph to find estimates of the solutions to the equation $x^2 - x - 5 = 0$

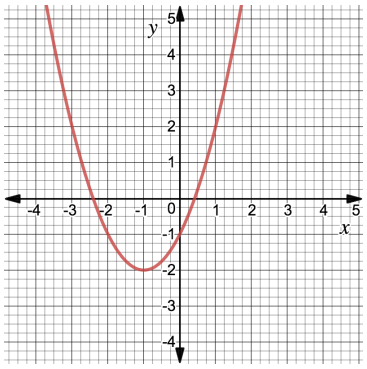
Question 5: Solve each of the following equations graphically

(a) $x^2 - 3x - 3 = 0$ (b) $x^2 + 8x + 5 = 0$ (c) $x^2 - 2x - 1 = 0$

(d) $x^2 - 5x - 8 = 0$ (e) $x^2 + 4x - 10 = 0$ (f) $2x^2 + 3x - 6 = 0$

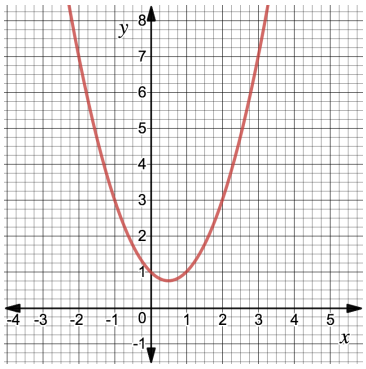
Question 6: Using the graphs below, solve each equation

$y = x^2 + 2x - 1$



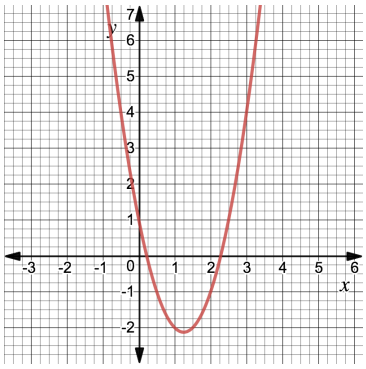
(a) Solve $x^2 + 2x - 1 = 2$

$y = x^2 - x + 1$



(b) Solve $x^2 - x + 1 = 7$

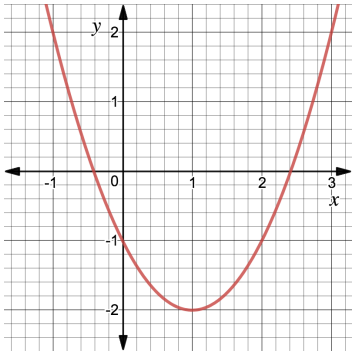
$y = 2x^2 - 5x + 1$



(c) Solve $2x^2 - 5x + 1 = 1$

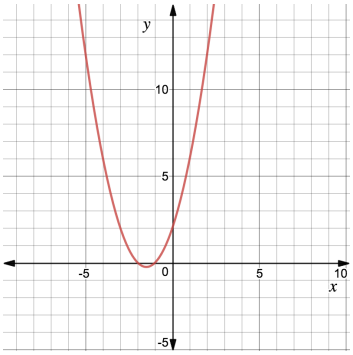
Question 7: Using the graphs, find estimates of the solutions to the following equations

$y = x^2 - 2x - 1$



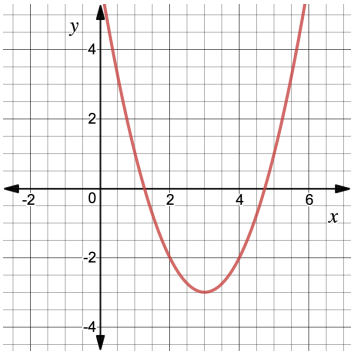
(a) $x^2 - 2x - 1 = 1$

$y = x^2 + 3x + 2$



(b) $x^2 + 3x + 2 = 11$

$y = x^2 - 6x + 6$



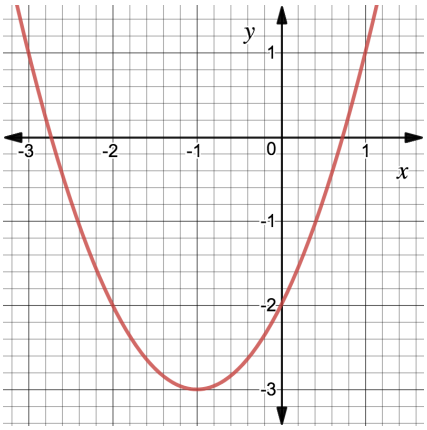
(c) $x^2 - 6x + 6 = -1$

Solving Quadratics Graphically

Video 267c on Corbettmaths

Apply

Question 1: The graph of $y = f(x)$ is drawn on the grid.

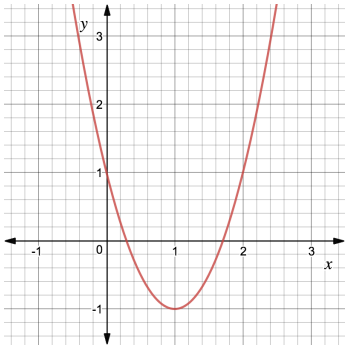


(a) Write down estimates for the roots of $f(x) = 0$

(b) Use the graph to find an estimates for the roots of $f(x) = -1$

(c) Write down the coordinates of the turning point of the graph

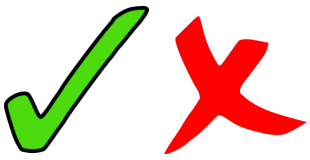
Question 2: The grid below shows the graph of $y = 2x^2 - 4x + 1$



The graph of $2x^2 - 4x + 1 = k$ has exactly one solution.

Use the graph to find the value of k

Answers



Click here

Scan here

Solving Quadratics Graphically

Workout

(a) x = −3 or x = 4 (b) x = 1 or x = 3 (c) x = −7 or x = 0

Question 2

(a) x = −0.5 or x = 2 (b) x = 1.5 or x = 5 (c) x = −1.75 or x = −1

Question 3

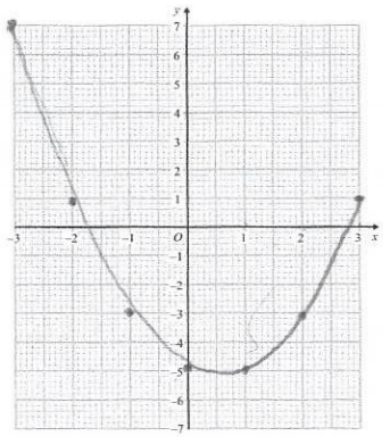
(a) x = 0.8 or x = 6.2 (b) x = −1.6 or x = 0.6 (c) x = −2.7 or x = 4.7

Question 4

(a)

x	-3	-2	-1	0	1	2	3
y	7	1	-3	-5	-5	-3	1

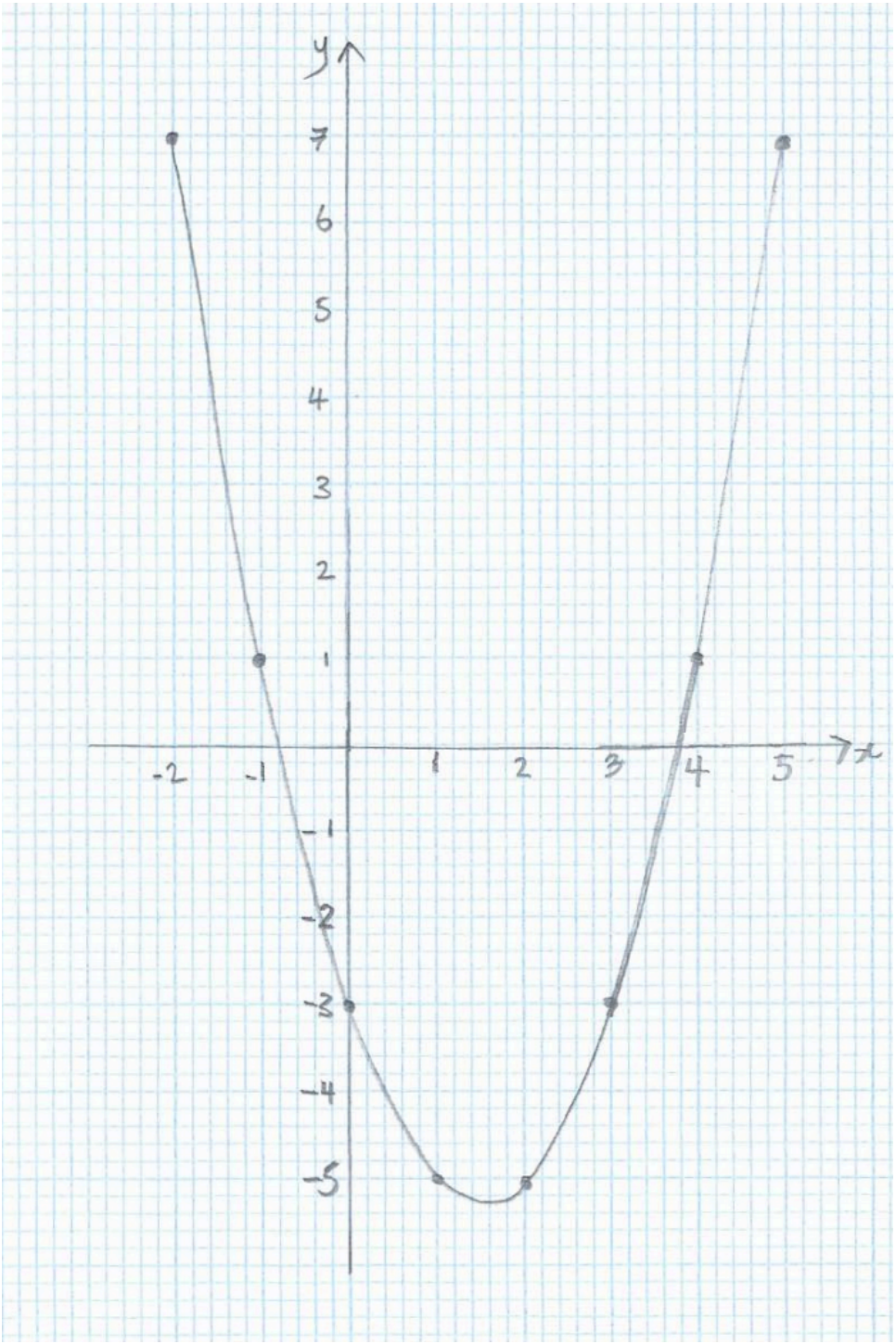
(b)



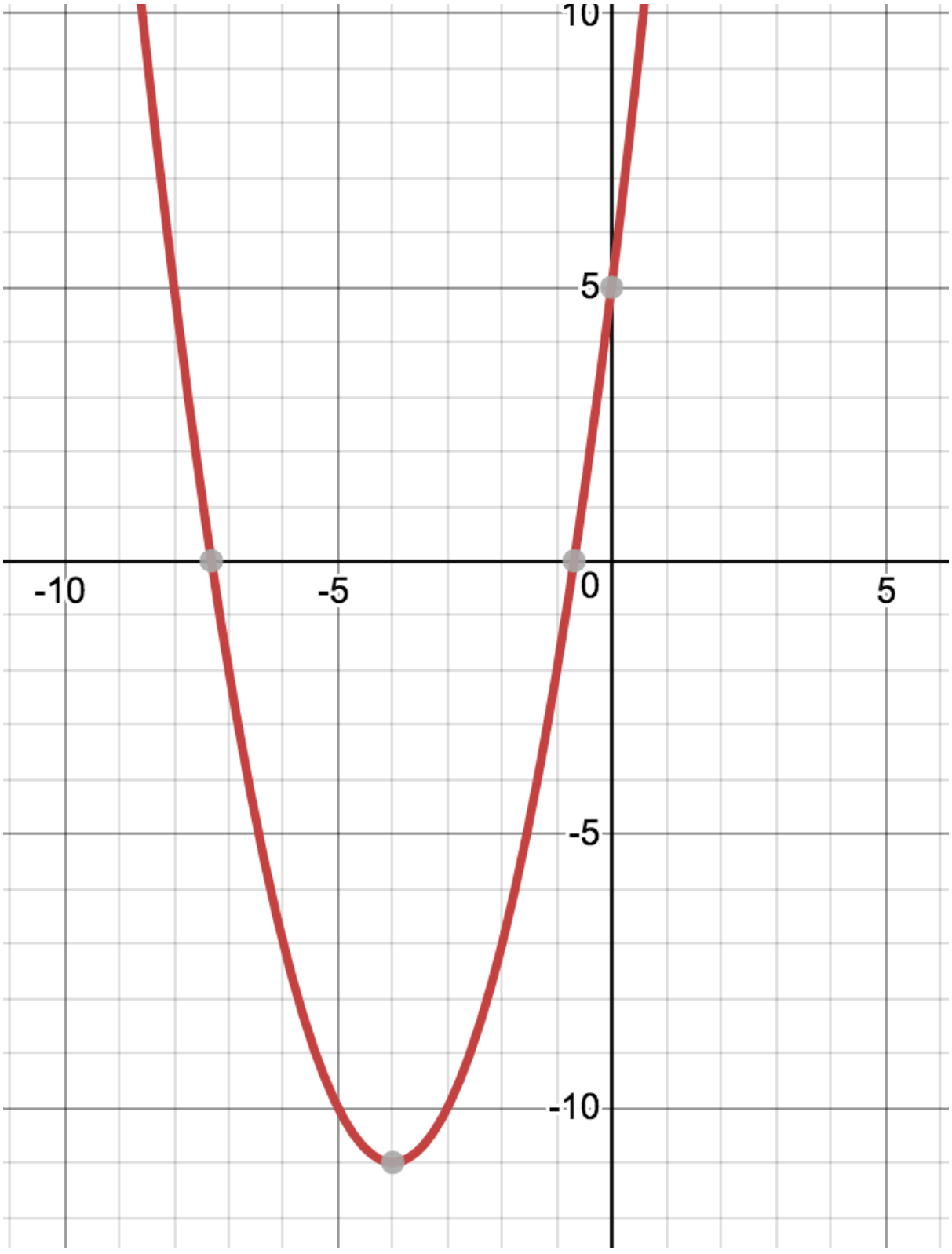
(c) x = −1.8, x = 2.8

Question 5

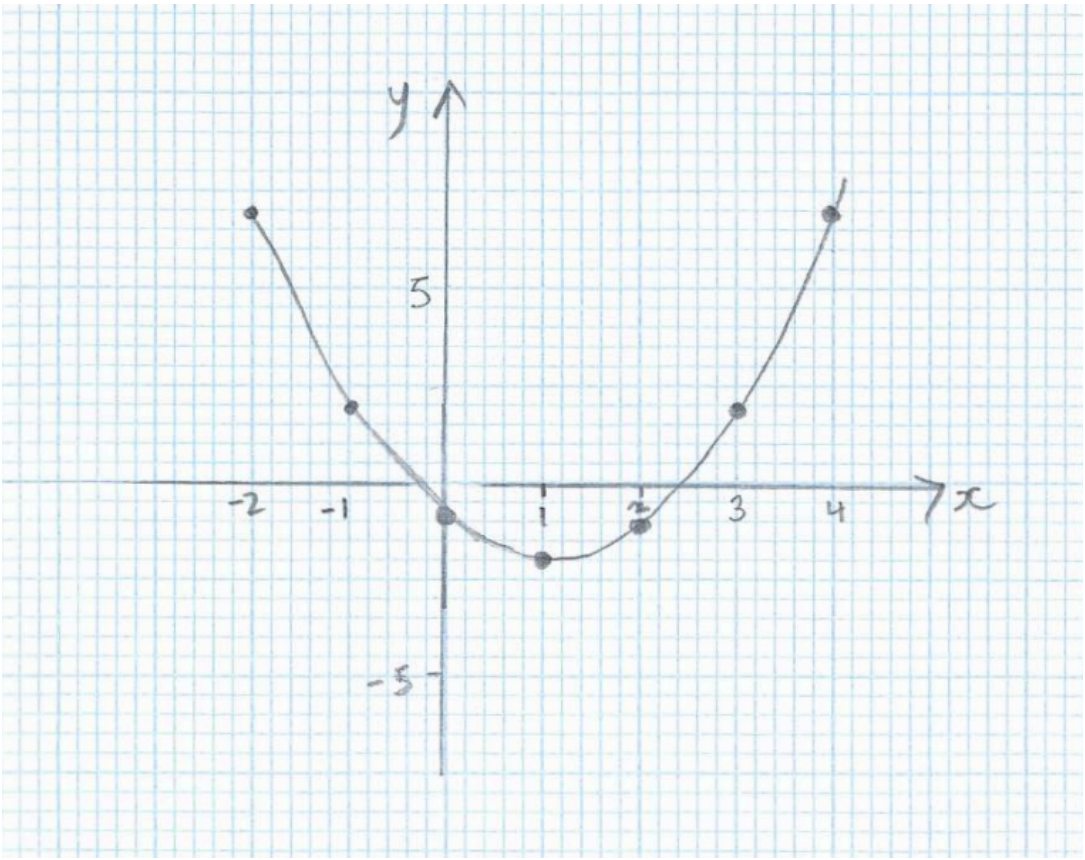
(a) x==−0.8 or x=3.8



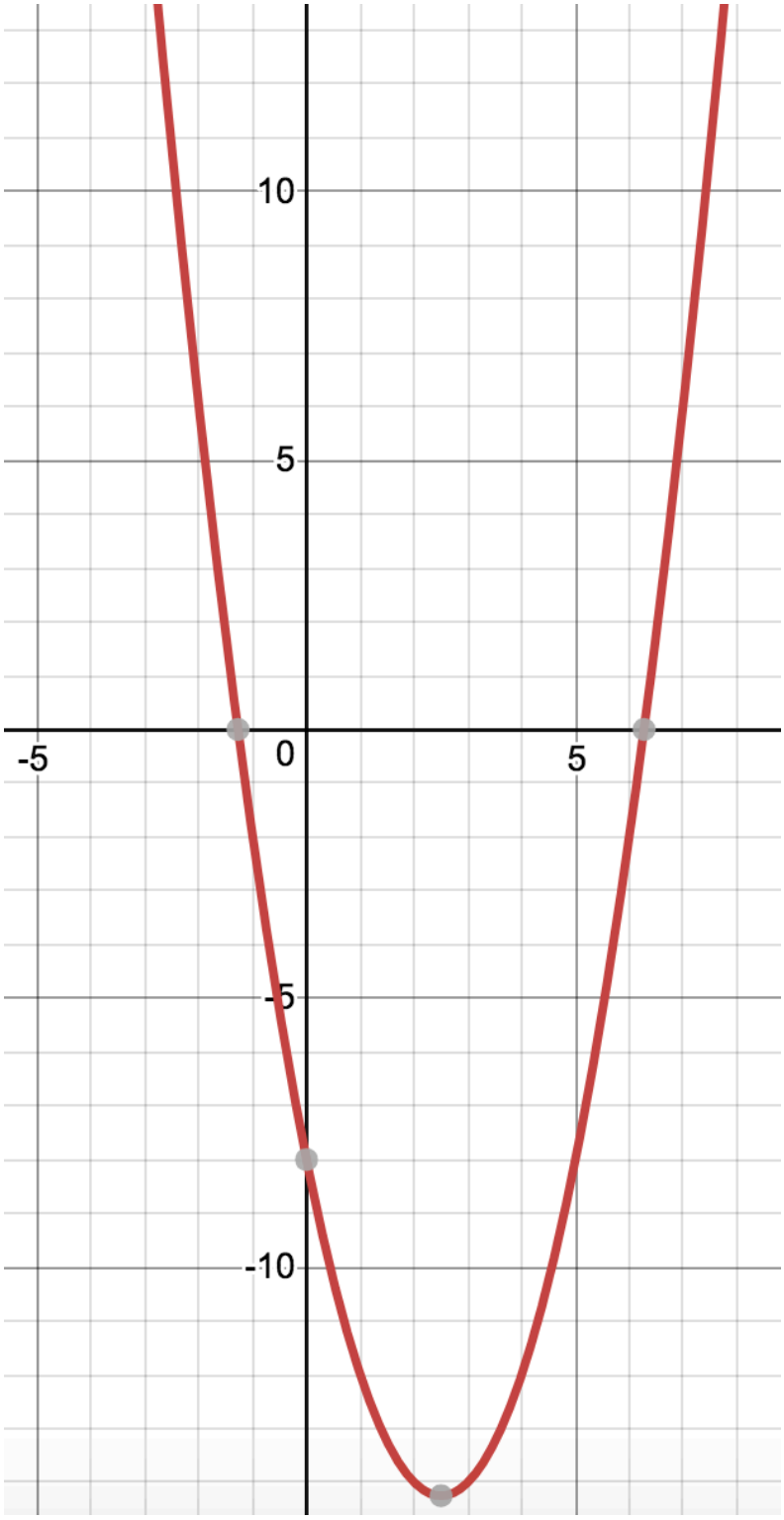
(b) $x=-7.3, x=-0.7$



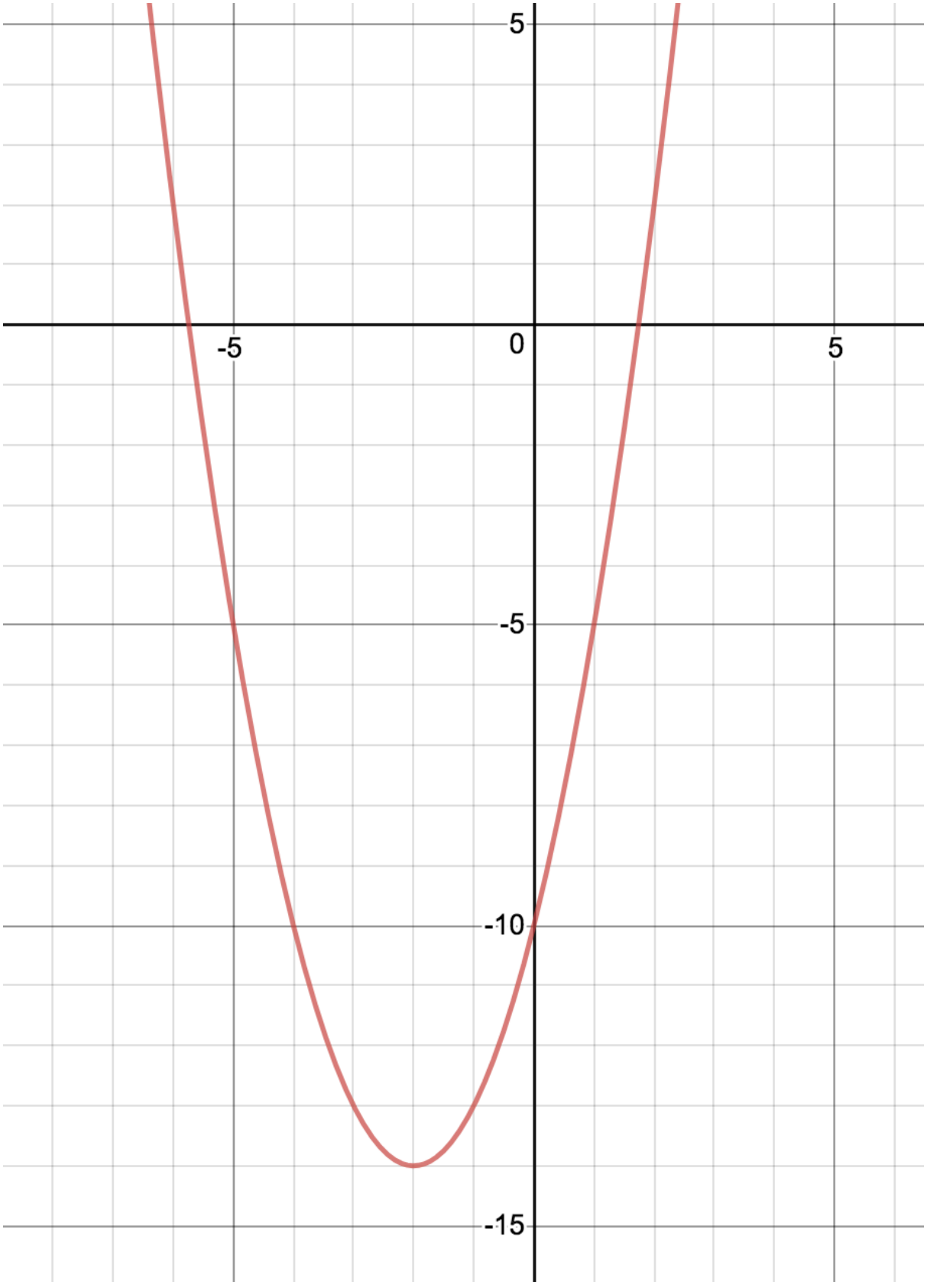
(c) $x = -0.2$ or $x = 2.4$



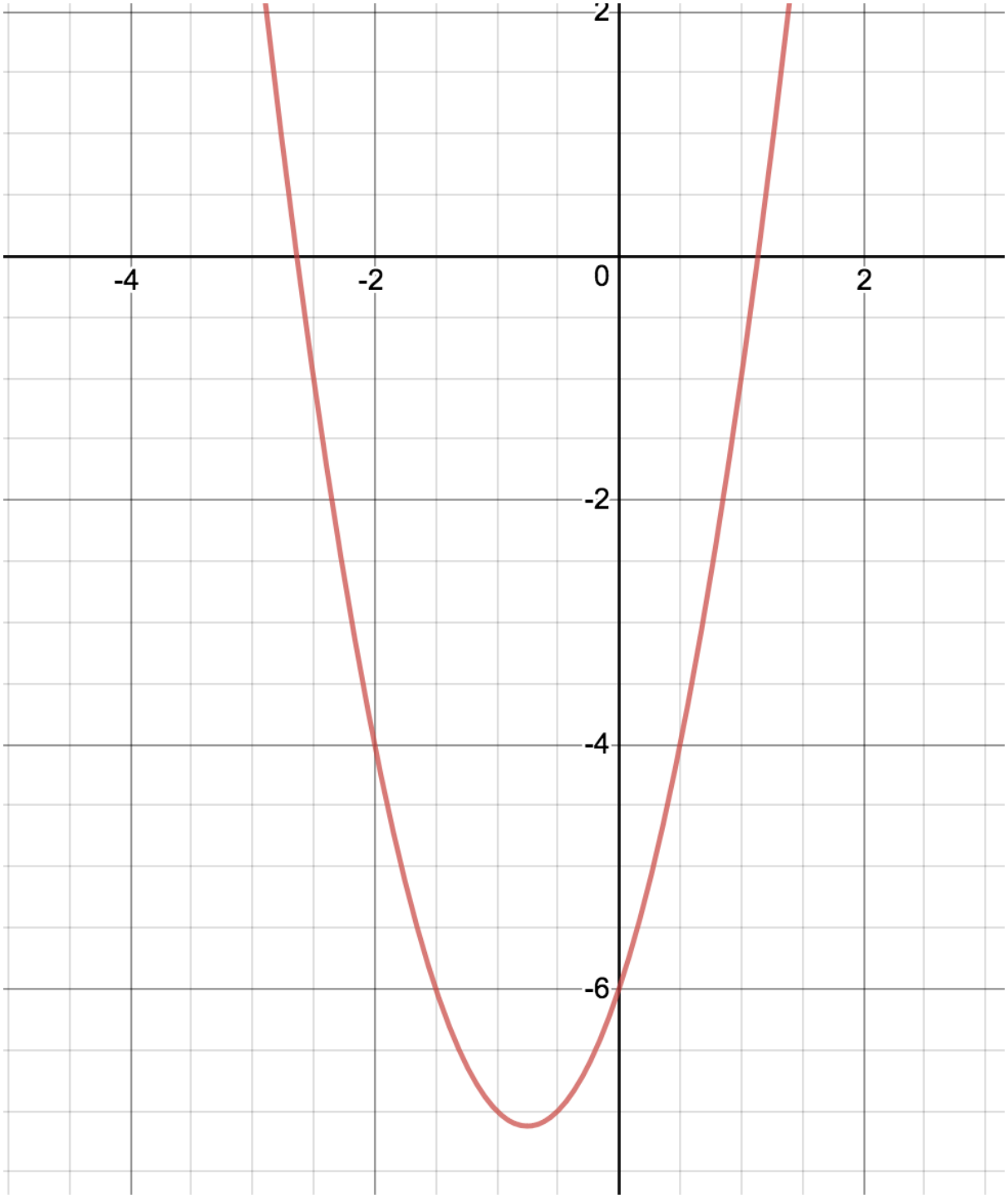
(d) $x = -1.3$ or $x = 6.3$



(e) x= −5.7 or x = 1.7



(f) $x = -2.6 \quad \text{or} \quad x = 1.1$



Question 6

(a) $x = -3$ or $x = 1$ (b) $x = -2$ or $x = 3$ (c) $x = 0$ or $x = 2.5$

Question 7

(a) $x = -0.7$ or $x = 2.7$

(b) $x = -4.9$ or $x = 1.9$

(c) $x = 1.6$ or $x = 4.4$

Apply

Question 1

(a) $x = -2.7$ or $x = 0.7$

(b) $x = -2.4$ or $x = 0.4$

(c) $(-1, -3)$

Question 2: $k = -1$

Name:

Exam Style Questions

Reciprocal Graphs

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

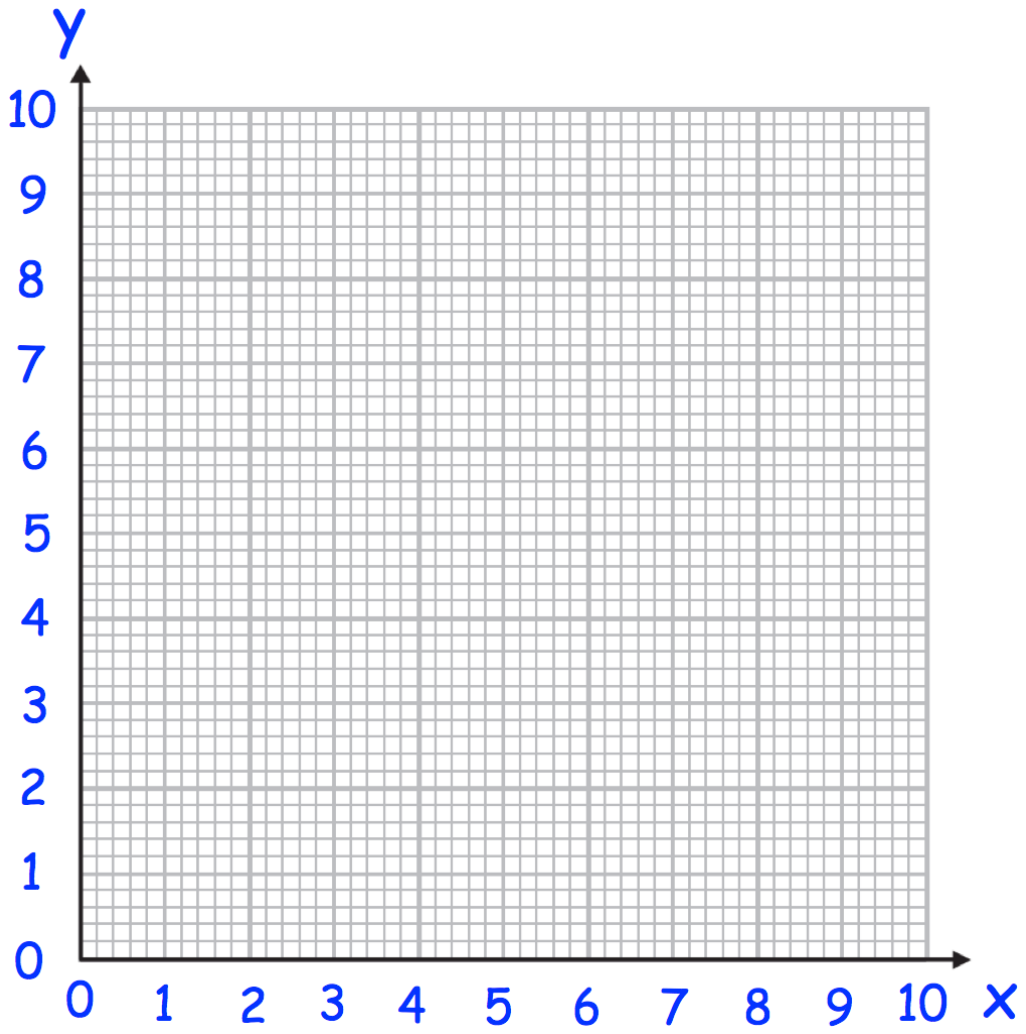
Video 346

1. (a) Complete the table of value for $y = \frac{4}{x}$

x	0.5	1	2	4	8	10
y						

(2)

(b) On the grid, draw the graph of $y = \frac{4}{x}$ for $0.25 \leq x \leq 10$



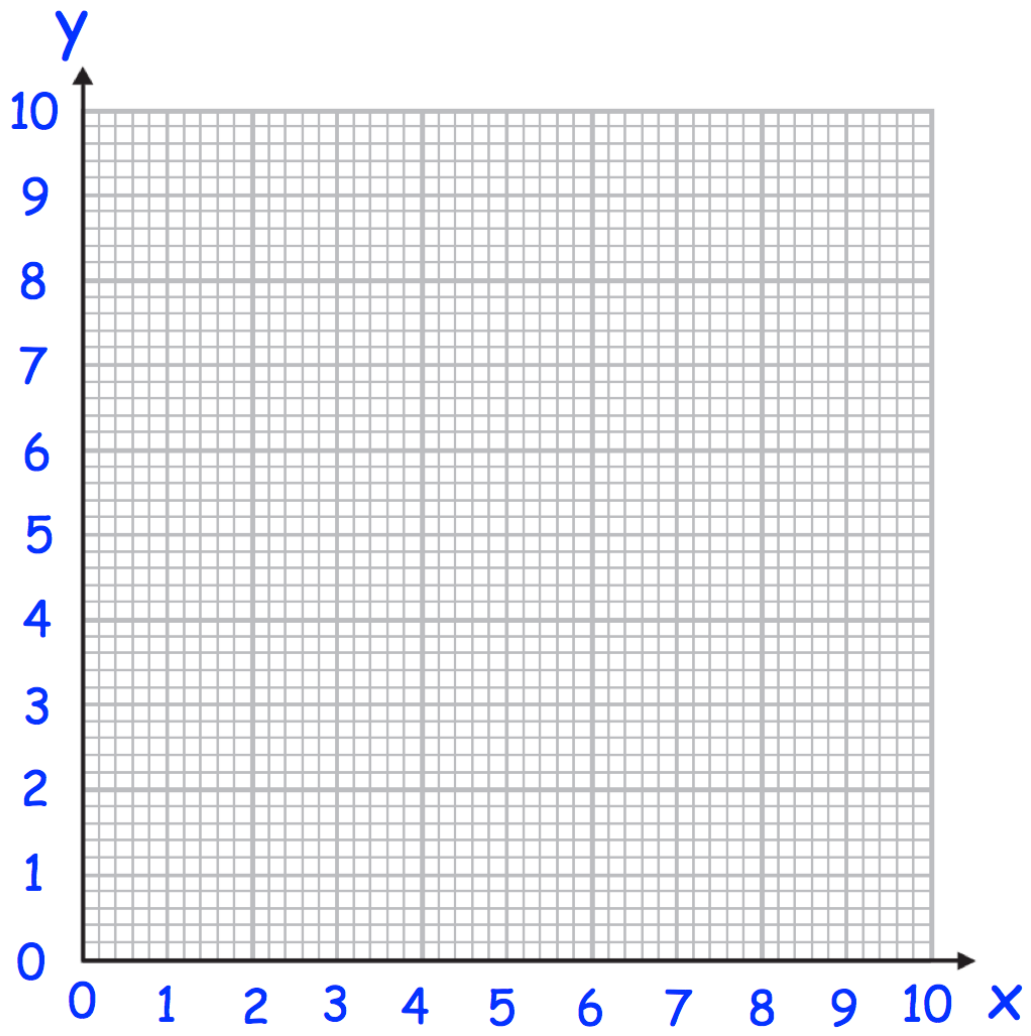
(2)

2. Complete the table of values for $y = \frac{5}{x}$

x	0.5	1	2	4	8	10
y						

(2)

(b) On the grid, draw the graph of $y = \frac{5}{x}$ for $0.5 \leq x \leq 10$



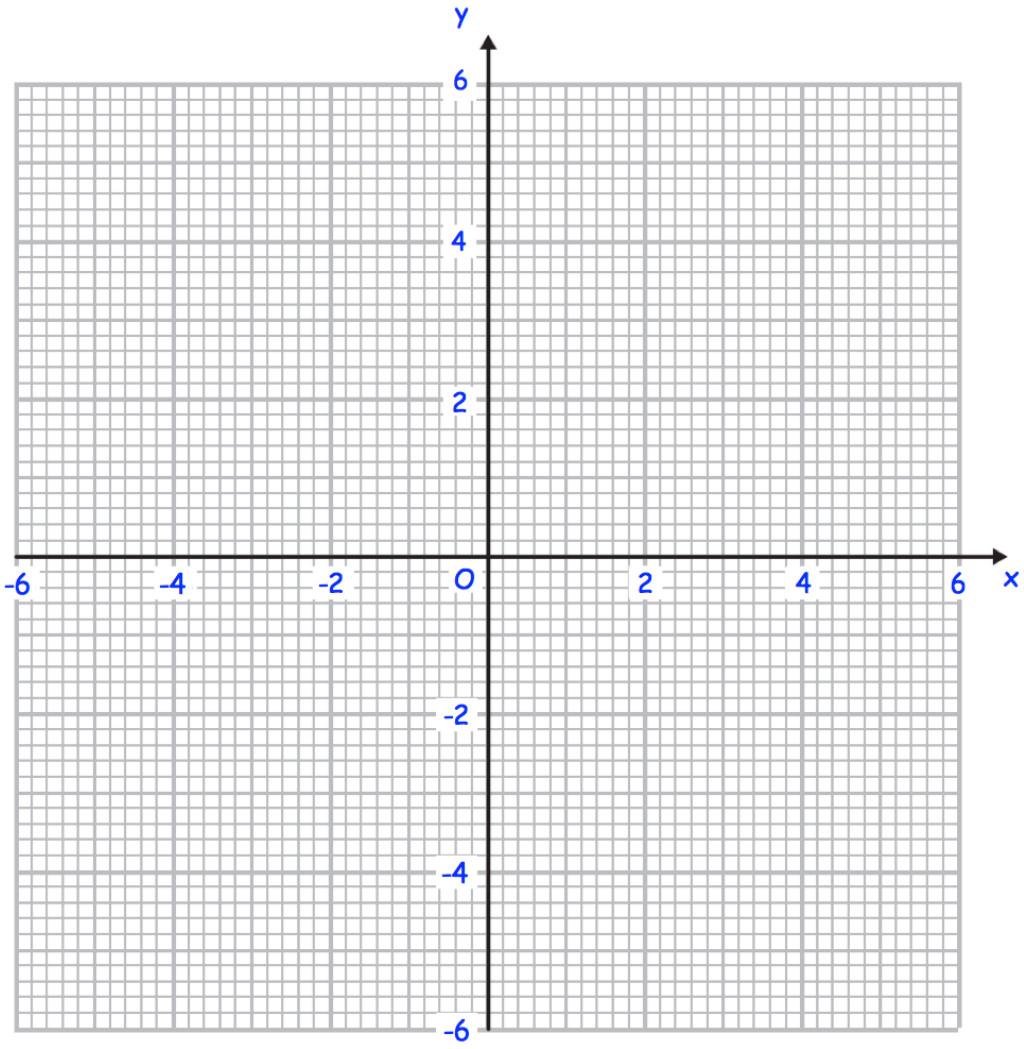
(2)

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

x	-5	-2	-1	-0.5	0.5	1	2	5
y								

(2)

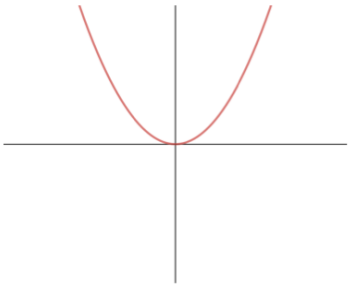
(b) On the grid, draw the graph of $y = \frac{2}{x}$ for $0.5 \leq x \leq 10$



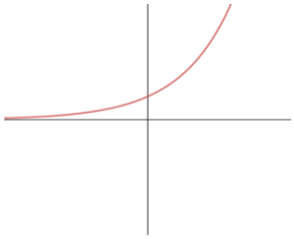
(2)

4. Match each graph to the correct equation

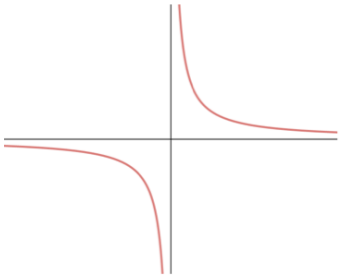
Graph A



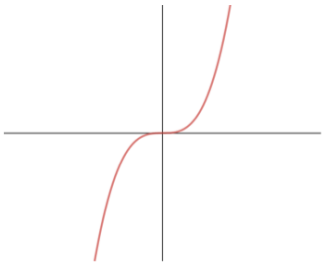
Graph B



Graph C



Graph D



$y = x^2$ is graph **A**

$y = x^3$ is graph ……..

$y = 2^x$ is graph ……..

$y = \frac{1}{x}$ is graph ……

(2)

Name:

Exam Style Questions

Reciprocal Graphs

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

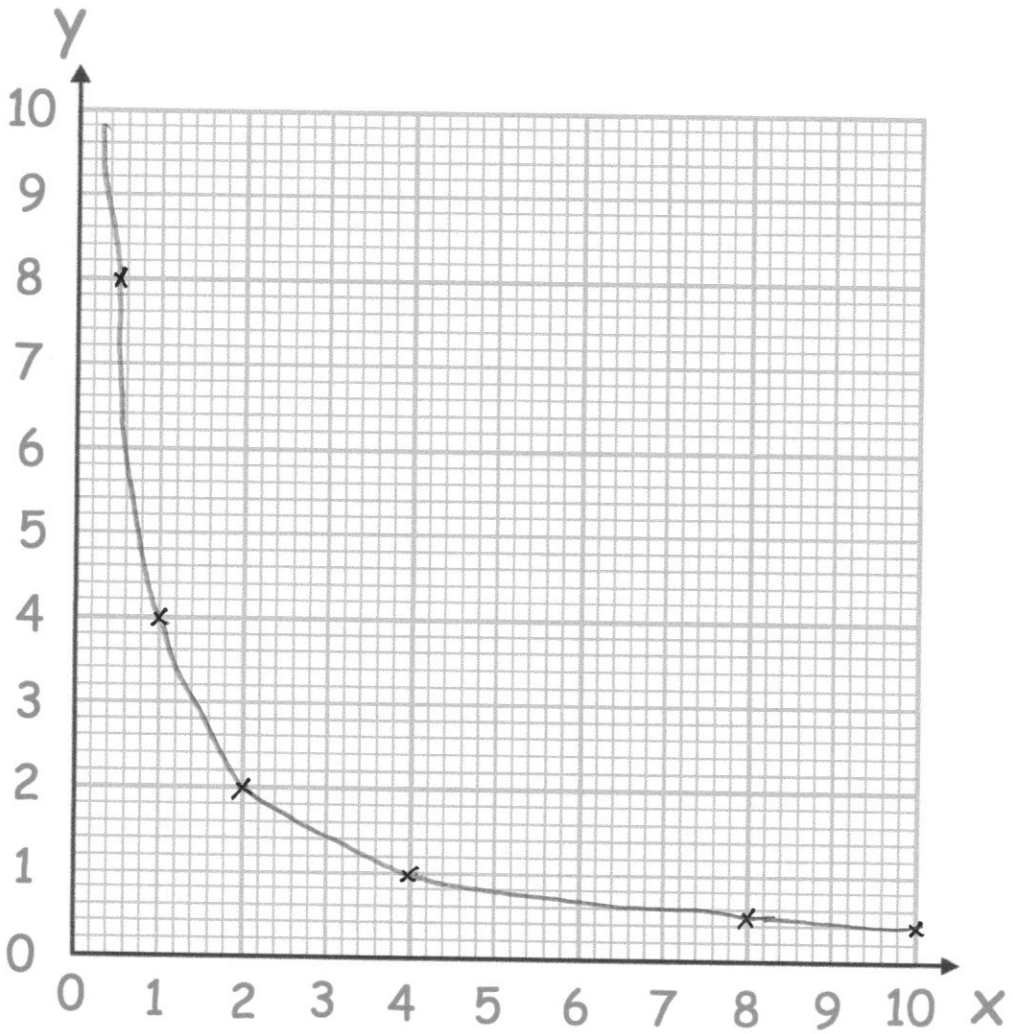
Video 346

1. (a) Complete the table of value for $y = \frac{4}{x}$

x	0.5	1	2	4	8	10
y	8	4	2	1	$\frac{1}{2}$	$\frac{2}{5}$ or 0·4

(2)

(b) On the grid, draw the graph of $y = \frac{4}{x}$ for $0.25 \leq x \leq 10$



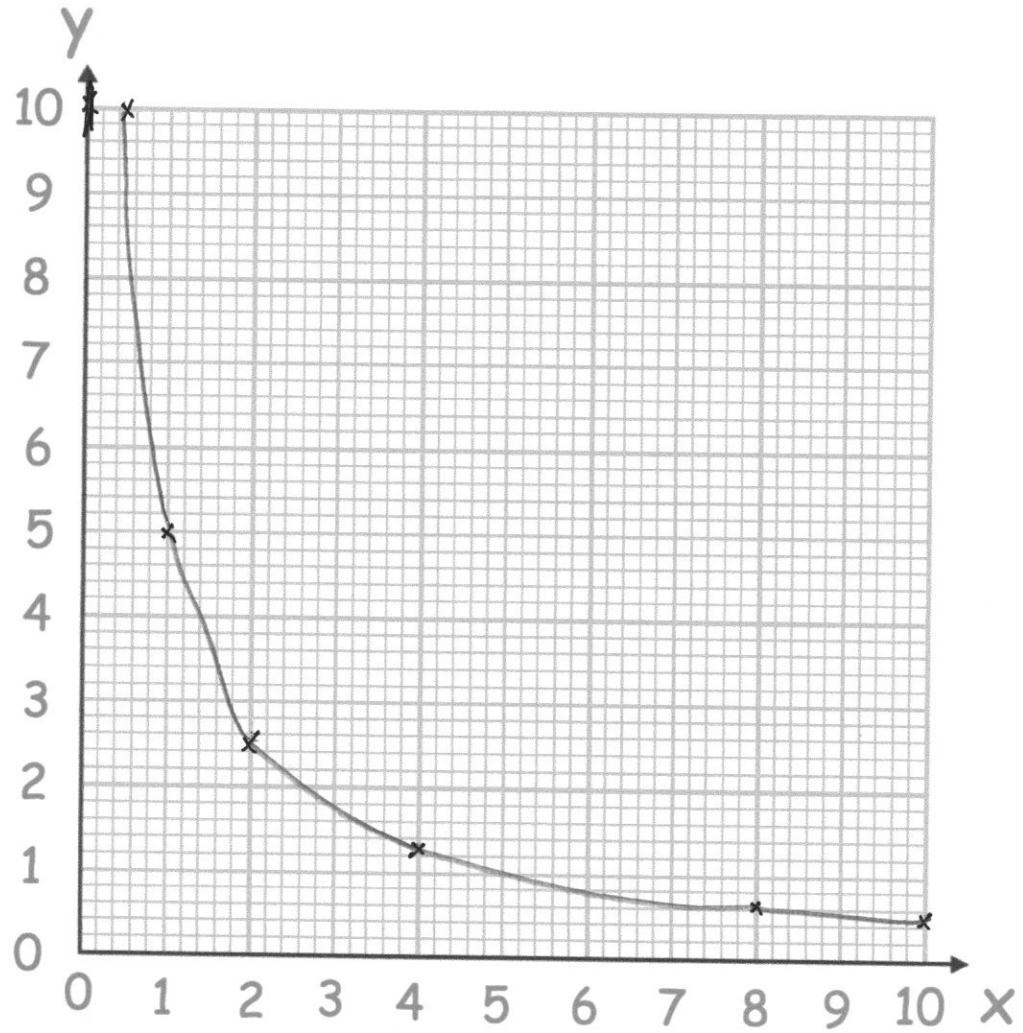
(2)

2. Complete the table of values for $y = \frac{5}{x}$

x	0.5	1	2	4	8	10
y	10	5	2.5	1.25	0.625	0.5

(2)

(b) On the grid, draw the graph of $y = \frac{5}{x}$ for $0.5 \leq x \leq 10$



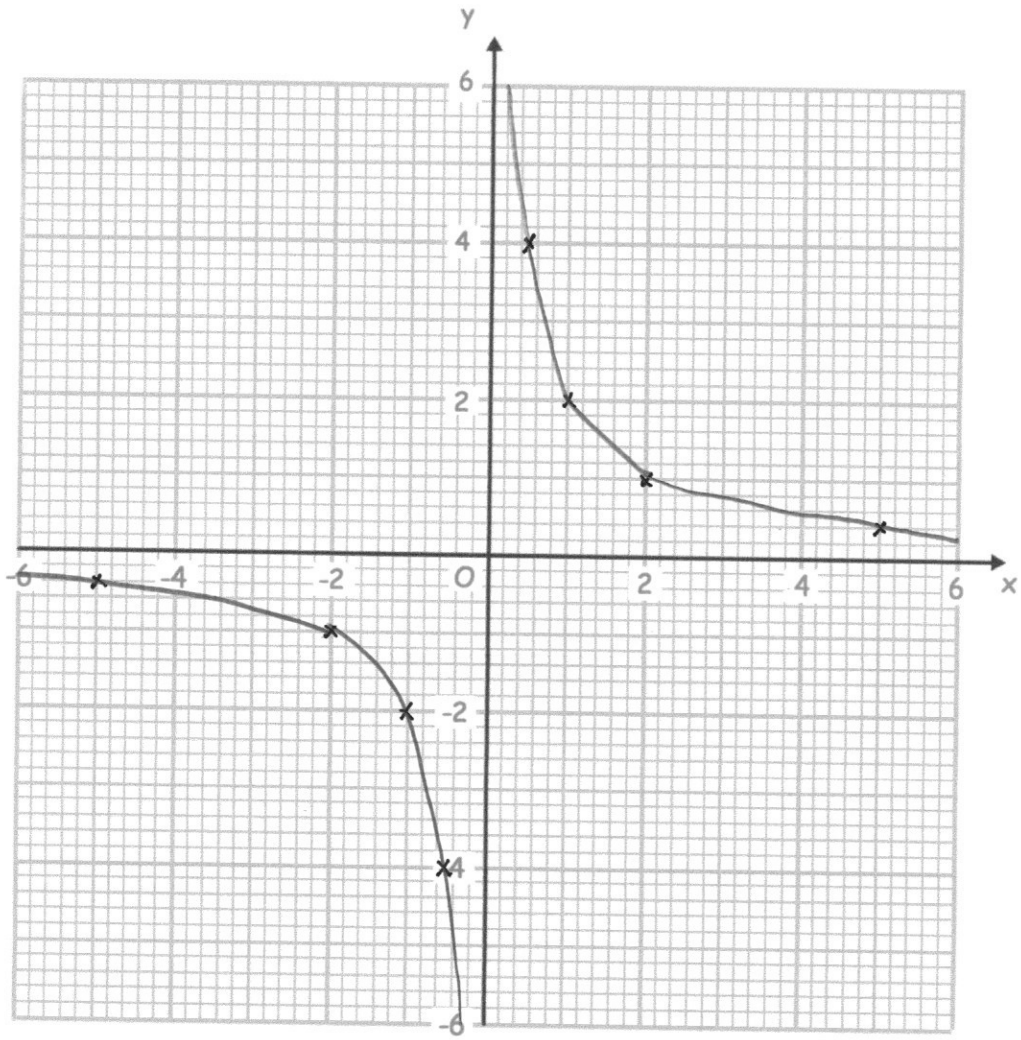
(2)

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

x	-5	-2	-1	-0.5	0.5	1	2	5
y	-0·4	-1	-2	-4	4	2	1	0·4

(2)

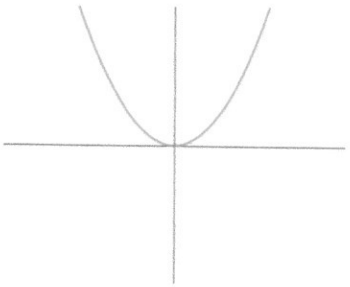
(b) On the grid, draw the graph of $y = \frac{2}{x}$ for $0.5 \leq x \leq 10$



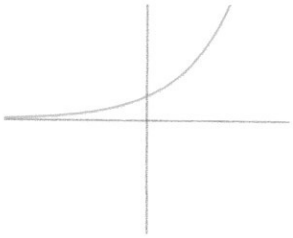
(2)

4. Match each graph to the correct equation

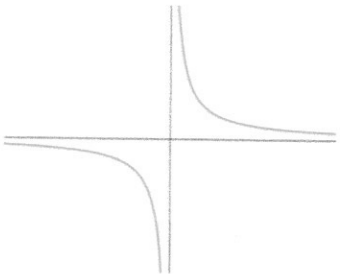
Graph A



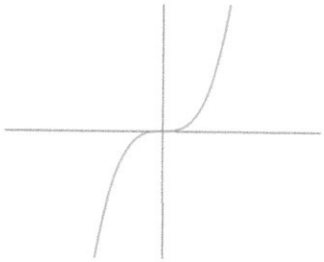
Graph B



Graph C



Graph D



$y = x^2$ is graph **A**

$y = x^3$ is graph D

$y = 2^x$ is graph B

$y = \frac{1}{x}$ is graph C

(2)