

Name: _____

GCSE Maths 2022
Edexcel Foundation Paper 1
Set B
Non-Calculator



Corbettmaths

Equipment

1. A black ink ball-point pen.
2. A pencil.
3. An eraser.
4. A ruler.
5. A pair of compasses.
6. A protractor.

Guidance

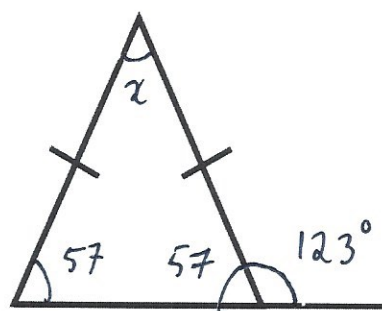
1. Read each question carefully.
2. Check your answers seem right.
3. Always show your workings

Information

1. This paper has been created based on topics in the Advance Information.
2. Also see Corbettmaths for the checklist for the entire GCSE as these topics may still be useful for Paper 1
3. There is one question per topic - this paper is designed to give an opportunity to practice each topic rather than replicate the actual paper.
4. The marks for questions are shown in brackets



1.



Find the size of angle x.

$$180 - 123 = 57$$

$$57 \times 2 = 114$$

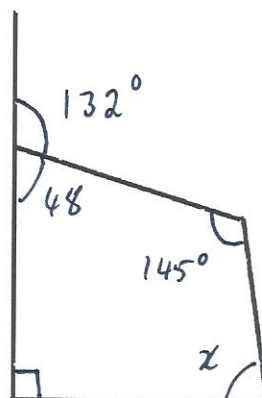
$$180 - 114 = 66$$

66

(2)

2.

$$180 - 132 = 48^\circ$$



Find x

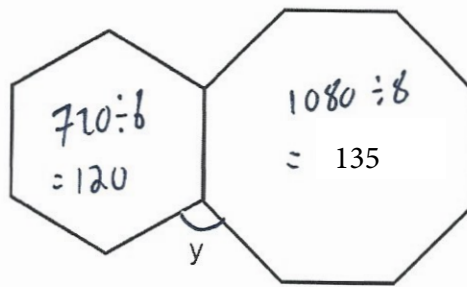
$$\begin{array}{r} 145 \\ 90 \\ + 48 \\ \hline 283 \end{array}$$

$$\begin{array}{r} 280 \\ - 283 \\ \hline 77 \end{array}$$

77

(3)

3. Shown is a regular hexagon and a regular octagon.



Calculate the size of angle y .

$$360 - 120 = 240$$

$$240 - 135 = 105$$

$$y = 105^\circ$$

(3)

4. (a) Change 16m to cm.
 $\times 100$
 1600

$$1600 \text{ cm}$$

(1)

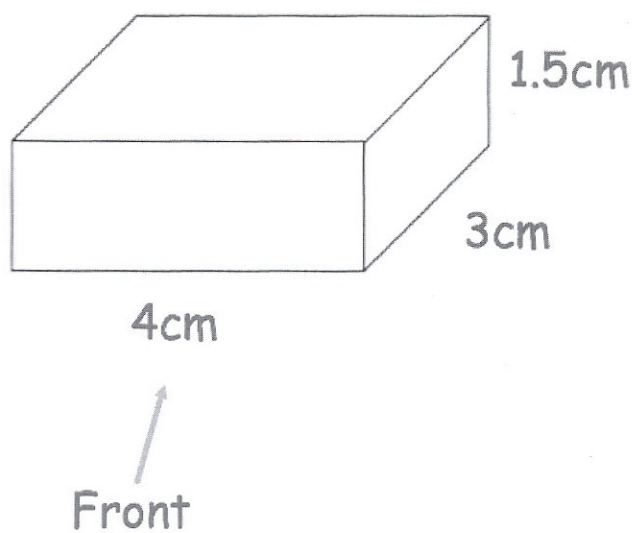
- (b) Change 400m to km.

$$400 \div 1000 = 0.4$$

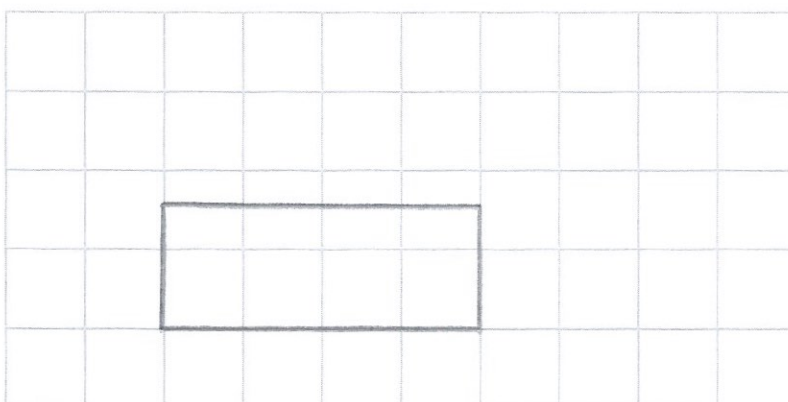
$$0.4 \text{ km}$$

(1)

5. Shown below is a cuboid.

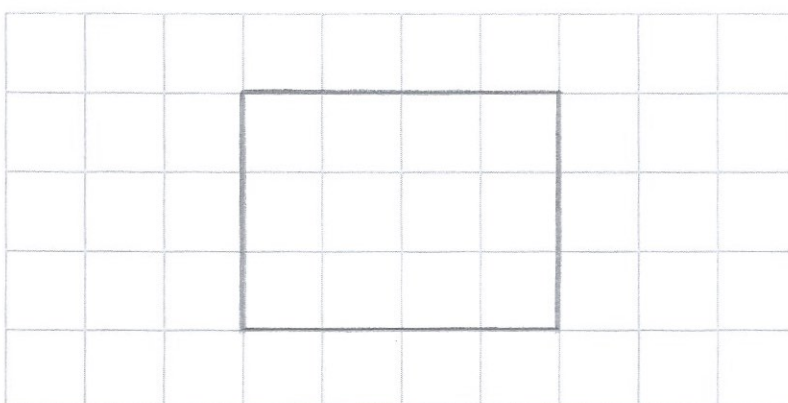


- (a) On the centimetre square grid, draw the front elevation.



(2)

- (b) On the centimetre square grid, draw the plan view.



(2)

6. Robert drives for 8 hours at an average speed of 34mph.

How far does Robert drive?

$$s \quad d \quad t$$

$$\begin{aligned} d &= s \times t \\ &= 34 \times 8 \\ &= 272 \end{aligned}$$

272miles
(2)

7. A solid glass cube has side length of 10cm. $10 \times 10 \times 10 = 1000$
The mass of the glass cube is 2.5kg. 2500g

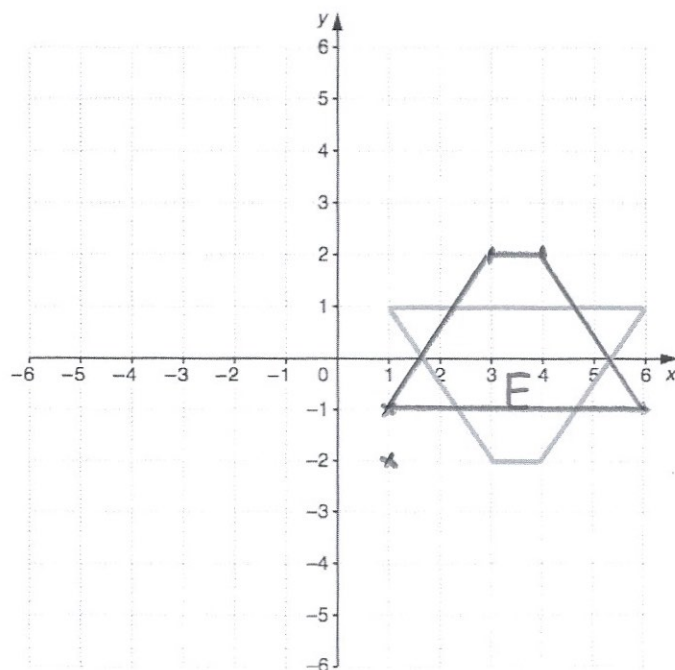
Find the density of glass.
Give your answer in g/cm³

$$d \quad m \quad v$$

$$d = \frac{2500}{1000} = 2.5$$

2.5g/cm³
(3)

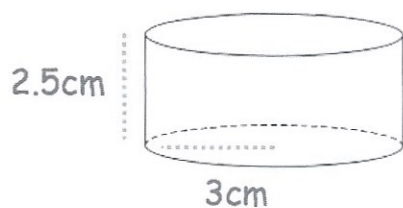
8.



Reflect shape E in the x-axis.

(2)

9.



$$\begin{array}{r} 2.5 \\ \times 9 \\ \hline 22.5 \end{array}$$

Calculate the volume of the cylinder.
Give your answer in terms of π
State the units of your answer.

$$\begin{aligned} V &= \pi r^2 h \\ V &= \pi \times 3^2 \times 2.5 \\ &= \pi \times 9 \times 2.5 \\ &= 22.5\pi \end{aligned}$$

$$\underline{22.5\pi \text{ cm}^3}$$

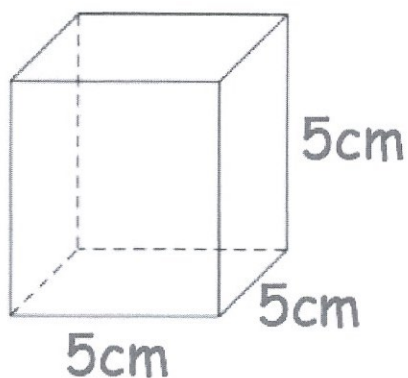
(4)

10. Write down the exact value of $\cos 60^\circ$

$\frac{1}{2}$

(1)

11.



Work out the volume of the cube.
State the units of your answer.

$$\begin{aligned} V &= L \times W \times H \\ &= 5 \times 5 \times 5 \end{aligned}$$

125 cm^3

(2)

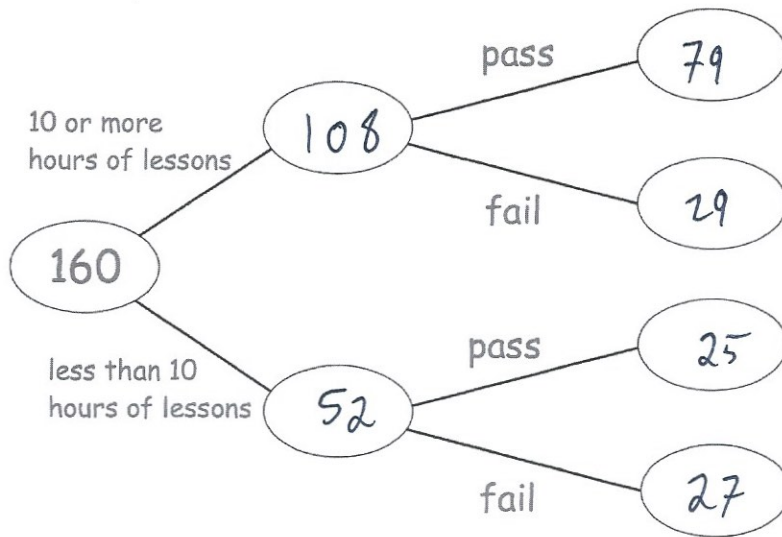
12. 160 people sit their driving test.

108 people took 10 or more hours of driving lessons.

29 of the people who took 10 or more hours of driving lessons failed their test.

104 people passed their driving test altogether.

Use this information to complete the frequency tree.



$$104 - 79 = 25$$

(3)

13. The pictogram shows the number of hours of sunshine in four cities for a day in May.

Paris		10
Cork		12
London		7
Swansea		9

Key  represents 4 hours

- (a) Which city had the most sunshine?

Cork

(1)

- (b) How many hours of sunshine did Swansea have?

9

(1)

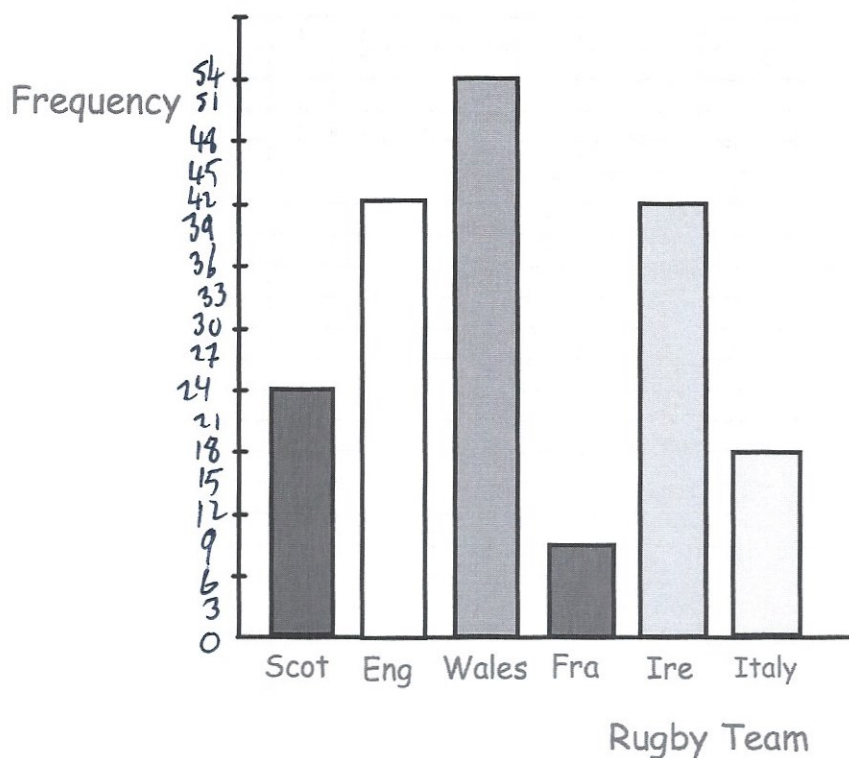
- (c) How many more hours of sunshine did Paris have than London?

3

(1)

14. Tom has asked his friends which country they support in the Six Nations. He has shown the results in a bar chart.

The bar chart is accurately drawn, but Tom has forgotten to label the frequencies. Tom does remember that 9 people supported France.



Find the missing frequencies.

Rugby Team	Frequency
Scotland	24
England	42
Wales	54
France	9
Ireland	42
Italy	18

15. There are 20 counters in a bag.

7 { 2 of the counters are white.
1 of the counters is pink.
4 of the counters are black.
13 The rest of the counters are purple.

Carter takes a counter at random from the bag.

Show that the probability that the counter is white or purple is $\frac{3}{4}$

$$2 + 13 = 15$$

$$\frac{15}{20} = \frac{3}{4}$$

.....
(2)

16. The weights of books on a shelf are recorded in a stem and leaf diagram.

Key: 0|3 means 0.3kg

0		3	4	4	4	7	8
1		2	8				
2		5					
3		1					

The bookshelf can hold 12kg.

Will the bookshelf be able to support the 10 books?

$$0.3 + 0.4 + 0.4 + 0.4 + 0.7 + 0.8 + 1.2 + 1.8 + 2.5 + 3.1 = 11.6 \text{ kg}$$

yes

.....
(2)

17. Helen jogs at an average speed of 9.8 kilometres per hour.
 $\approx 10 \text{ km/h}$

Helen runs 3 kilometres.

- (a) Work out an estimate for how long it takes Helen to run 3 kilometres.

$s \quad d \quad t$

$$t = \frac{3}{10} = 0.3$$

$$0.3 \times 60 = 18 \text{ mins.}$$

18 mins

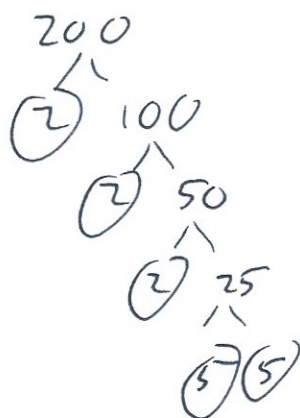
(3)

- (b) Is your answer to (a) an underestimate or an overestimate?
Give a reason for your answer.

Underestimate as I rounded up her speed, so it
will take her longer.

(1)

18. Write 200 as a product of its prime factors.



$$2^3 \times 5^2$$

(2)

19. The population of the United Kingdom in 1951 was 5.08×10^7
The population of the United Kingdom in 2015 was 6.47×10^7

Work out how many more people live in the United Kingdom in 2015 than 1951.
Give your answer as an ordinary number.

$$\begin{array}{r} 64700000 \\ - 50800000 \\ \hline 13900000 \end{array}$$

13900000

(3)

20. Alisha buys 200 books costing £3 each. £600

She sells $\frac{2}{5}$ of the books at £8 each.

Alisha then reduces the price of the remaining books by a quarter. $8 - 2 = £6$ each
She then sells some of the remaining books.
Alisha makes £490 profit.

Work out how many books Alisha did **not** sell.

$$\frac{2}{5} \text{ of } 200 = 80$$

$$80 \times 8 = £640$$

$$200 - 80 = 120$$

$$120 - 75 = 45$$

$$600 + 490 = 1090$$

$$1090 - 640 = £450$$

$$\begin{array}{r} 075 \\ 6 \overline{) 450} \end{array}$$

45

(5)

21. Work out $3\frac{1}{2} - 2\frac{5}{9}$

$$\frac{7}{2} - \frac{23}{9}$$

$$\frac{63}{18} - \frac{46}{18} = \frac{17}{18}$$

$$\frac{17}{18}$$

(2)

22. Alexis has a pet dog, Maxi.

Each day, Maxi eats $\frac{2}{3}$ of a can of dog food.

Alexis is buying dog food for one week.

How many cans of dog food should Alexis buy?

$$\frac{2}{3} \times 7 = \frac{14}{3}$$

$$4\frac{2}{3}$$

5 cans

(3)

23. Work out $1\frac{2}{3} \div 2\frac{1}{4}$

$$\frac{5}{3} \div \frac{9}{4}$$

$$\frac{5}{3} \times \frac{4}{9} = \frac{20}{27}$$

$$\frac{20}{27}$$

(2)

24. What is the reciprocal of 0.25?

$$\frac{1}{4} \rightarrow 4$$

Circle the correct answer.

4

1.25

$\frac{1}{4}$

-0.25

(1)

25. Write these numbers in order of size.
Start with the smallest number.

$$66\% \quad \frac{13}{20} \quad 0.606 \quad \frac{1}{2} \quad \frac{3}{5}$$

$$65\% \quad 60.6\% \quad 50\% \quad 60\%$$

$$\frac{1}{2}, \frac{3}{5}, 0.606, \frac{13}{20}, 66\%$$

(2)

26. Which is larger?

$$35\% \text{ of } 180 \quad \text{or} \quad \frac{1}{20} \text{ of } 1200 \quad 60$$

$$20 \overline{) 1200} \quad \begin{array}{r} 0060 \\ 20 \times 60 \end{array}$$

$$10\% \text{ of } 180 = 18$$

$$30\% \text{ of } 180 = 54$$

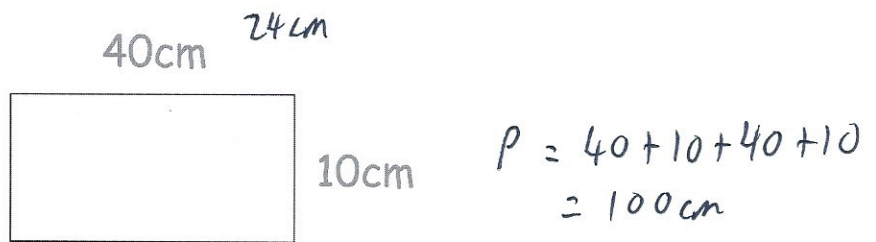
$$5\% \text{ of } 180 = 9$$

$$63$$

$$35\% \text{ of } 180$$

(3)

27. ABCD is a rectangle with length 40cm and width 10cm.



The length of the rectangle is decreased by 40%.

The width of the rectangle is decreased by 30%

Find the percentage decrease in the perimeter of the rectangle.

$$10\% \text{ of } 40 = 4$$

$$10\% \text{ of } 10 = 1$$

$$40\% \text{ of } 40 = 16$$

$$30\% \text{ of } 10 = 3$$

$$40 - 16 = 24$$

$$10 - 3 = 7$$

$$24 + 7 + 24 + 7 = 62$$

$$\frac{38}{100} \times 100$$

$$\frac{38}{100} \times 100 = 38\%$$

(2)

28. In a survey, the ratio of the number of people who preferred tea to those who preferred coffee was 9:5

$$9 + 5 = 14$$

Altogether 84 people were surveyed.

$$84 \div 14 = 6$$

How many more people preferred tea than coffee?

$$9 \times 6 = 54 - \text{tea}$$

$$5 \times 6 = 30 - \text{coffee}$$

$$54 - 30 = 24$$

$$24$$

(3)

29. These are the temperatures in towns cities on the same day.

Towns	Temperature (°C)
Leek	-8
Milton	12
Donhampton	-11
Redtown	7
Sandville	-16

- (a) Which town has the highest temperature?

Milton
(1)

- (b) Which town has the lowest temperature?

Sandville
(1)

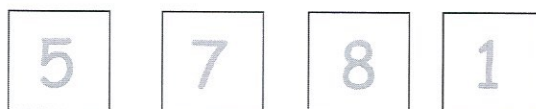
- (c) The temperature in Randalstown at the same time is 10°C colder than Leek

What is the temperature in Randalstown?

$$-8 - 10 = -18$$

-18 °C
(1)

30. Here are four number cards.



Use each digit once to make the largest **even** number



(1)

31. Barry is saving money towards a new motorbike that costs £4,000.
He saves £60 each month.

Work out what fraction of the total cost he saved over the first year of saving.
Give your answer in its simplest form.

$$60 \times 12 = 720$$

$$\frac{720}{4000} = \frac{72}{400}$$

$$= \frac{36}{200}$$

$$= \frac{18}{100}$$

$$\frac{9}{50}$$

(3)

32. Rebecca is making Chilli Con Carne.
Here is a list of ingredients to serve 6 people.

serves 6

1.2kg mince

420g tomatoes

3 chillies

600g kidney beans

Rebecca wants to make enough Chilli Con Carne for 4 people.

How many grams of tomatoes should Rebecca use?

$$420 \div 6 = 70$$

$$70 \times 4 = 280$$

$$\frac{280}{\dots\dots\dots} \text{g}$$

(3)

33. Simplify $2c - 3y + c + 5y$

$$3c + 2y$$

$$\begin{array}{r} 3c + 2y \\ \hline \end{array} \quad (2)$$

34. Simplify $8y \times 3x$

$$\begin{array}{r} 24xy \\ \hline \end{array} \quad (1)$$

35. Here are the first five terms of a number sequence.

9 15 21 27 33 39 45 51 57 63

(a) (i) Write down the next term of the number sequence.

$$33 + 6$$

$$\begin{array}{r} 39 \\ \hline \end{array} \quad (1)$$

(ii) Explain how you found your answer.

Added 6

(1)

(b) Work out the 10th term of the sequence.

$$\begin{array}{r} 63 \\ \hline \end{array} \quad (1)$$

36. Work out the n th term for this sequence

	20	18	16	14	12	...	...
$-2n$	-2	-4	-6	-8			

$$-2n + 22$$

$$\frac{-2n + 22}{(2)}$$

37. Factorise $x^2 - 9x + 20$

$$(x-5)(x-4)$$

$$\frac{(x-5)(x-4)}{(2)}$$

38. Solve $y^2 + 10y - 11 = 0$

$$(y+11)(y-1) = 0$$

$$y = -11 \quad y = 1$$

$$\frac{y = 1 \text{ or } y = -11}{(2)}$$

39. (a) Solve the inequality $2x - 1 < 9$

$$2x < 10$$
$$x < 5$$

$$x < 5$$

.....

(2)



- (b) Write down the inequality shown on the number above

$$x > -2$$

.....

(1)

- (c) Write down **all** the integers that satisfy both inequalities shown in part (a) and (b).

$$-1, 0, 1, 2, 3, 4$$

.....

(1)

40.

$$W = 6a - 2b$$

$$a = 3$$

$$b = -7$$

$$W = 18 - (-14)$$

$$= 32$$

Work out the value of W

$$32$$

.....

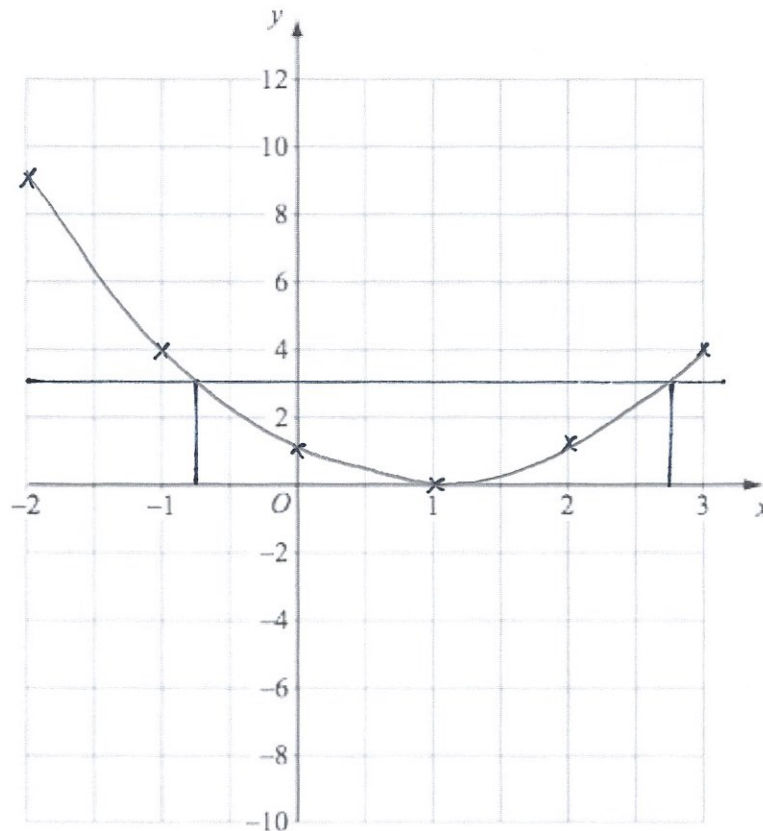
(2)

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

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

(2)

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



(2)

- (c) Use your graph to find estimates of the solutions to the equation $(x - 1)^2 = 3$

-0.75 or 2.75

(2)