

Please write clearly in block capitals.

Centre number

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Candidate number

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# GCSE MATHEMATICS

# F

Foundation Tier      Paper 2 Calculator

Thursday 8 June 2017

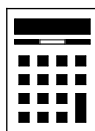
Morning

Time allowed: 1 hour 30 minutes

## Materials

For this paper you must have:

- a calculator
- mathematical instruments.



## Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

## Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

## Advice

- In all calculations, show clearly how you work out your answer.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
26	
<b>TOTAL</b>	



Answer **all** questions in the spaces provided

- 1** Which unit is most suitable for measuring the length of a tennis court?  
Circle your answer.

[1 mark]

kilometres

metres

centimetres

millimetres

- 2** Circle the multiple of both 8 and 12

[1 mark]

4

32

72

108

- 3** What is  $\frac{3}{2}$  as a decimal?

Circle your answer.

[1 mark]

1.05

1.1

1.5

3.2



4 Circle the correct statement.

[1 mark]

$-4 < -3$

$1 \leq -2$

$-6 > 5$

$-1 \geq 0$

5 (a) Use your calculator to work out  $\sqrt{701}$  as a decimal.

Write down your full calculator display.

[1 mark]

Answer \_\_\_\_\_

5 (b) Give your answer to part (a) to 1 decimal place.

[1 mark]


Answer \_\_\_\_\_

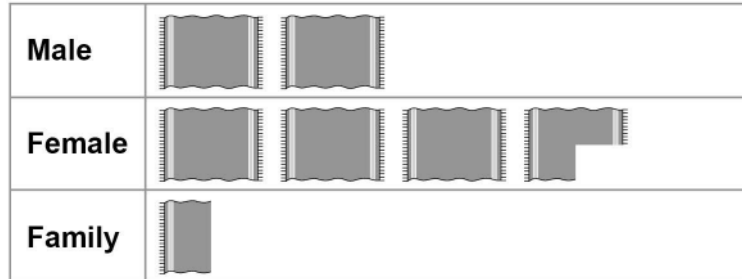
**Turn over for the next question**

**Turn over ►**



- 6** A swimming pool has three changing rooms, Male, Female and Family.  
The pictogram shows the number of people using each changing room during one hour.

**Key:**  represents \_\_\_\_\_ people



8 people used the Male changing room.

- 6 (a)** Complete the key.

[1 mark]

- 6 (b)** How many people used the Female changing room?

[1 mark]

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Answer \_\_\_\_\_



**6 (c)** The manager has bought lockers for the changing rooms.

Why should she **not** use these results to decide where to put them?

[1 mark]

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**7** Here is a list of numbers.

21 17 23 21 29 32 21 25 36

Work out the median.

[2 marks]

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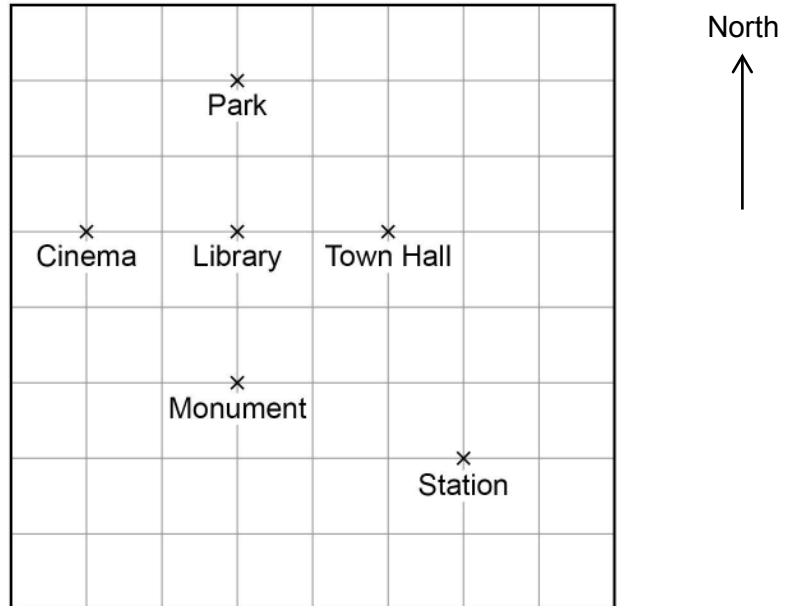
Answer \_\_\_\_\_

**Turn over for the next question**



**8** Here is a map of a town.

Scale: 1 cm represents 200 m



**8 (a)** Which place is exactly North West of the Station?  
Circle your answer.

[1 mark]

Cinema      Town Hall      Library      Park      Monument

**8 (b)** Circle the three-figure bearing of the Monument from the Park.

[1 mark]

090°      180°      270°      360°



**8 (c)** What is the distance, in metres, from the Cinema to the Station?

**[3 marks]**

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Answer \_\_\_\_\_ metres

**8 (d)** Why might the shortest **walking** distance from the Cinema to the Station be greater than your answer to part (c)?

**[1 mark]**

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**Turn over for the next question**



9 Complete the bank statement.

[2 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
13/12/2016	Starting balance			212.48
14/12/2016	Council tax		128.39	_____
15/12/2016	Salary	856.21		_____





**10** The average age of teachers at a school is 36 years.

Mr Smith's age is  $\frac{11}{9}$  of the average.

How old is Mr Smith?

**[2 marks]**

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Answer \_\_\_\_\_ years

**11** Solve  $4x - 3 = 14$

**[2 marks]**

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$x =$  \_\_\_\_\_

**Turn over for the next question**



12

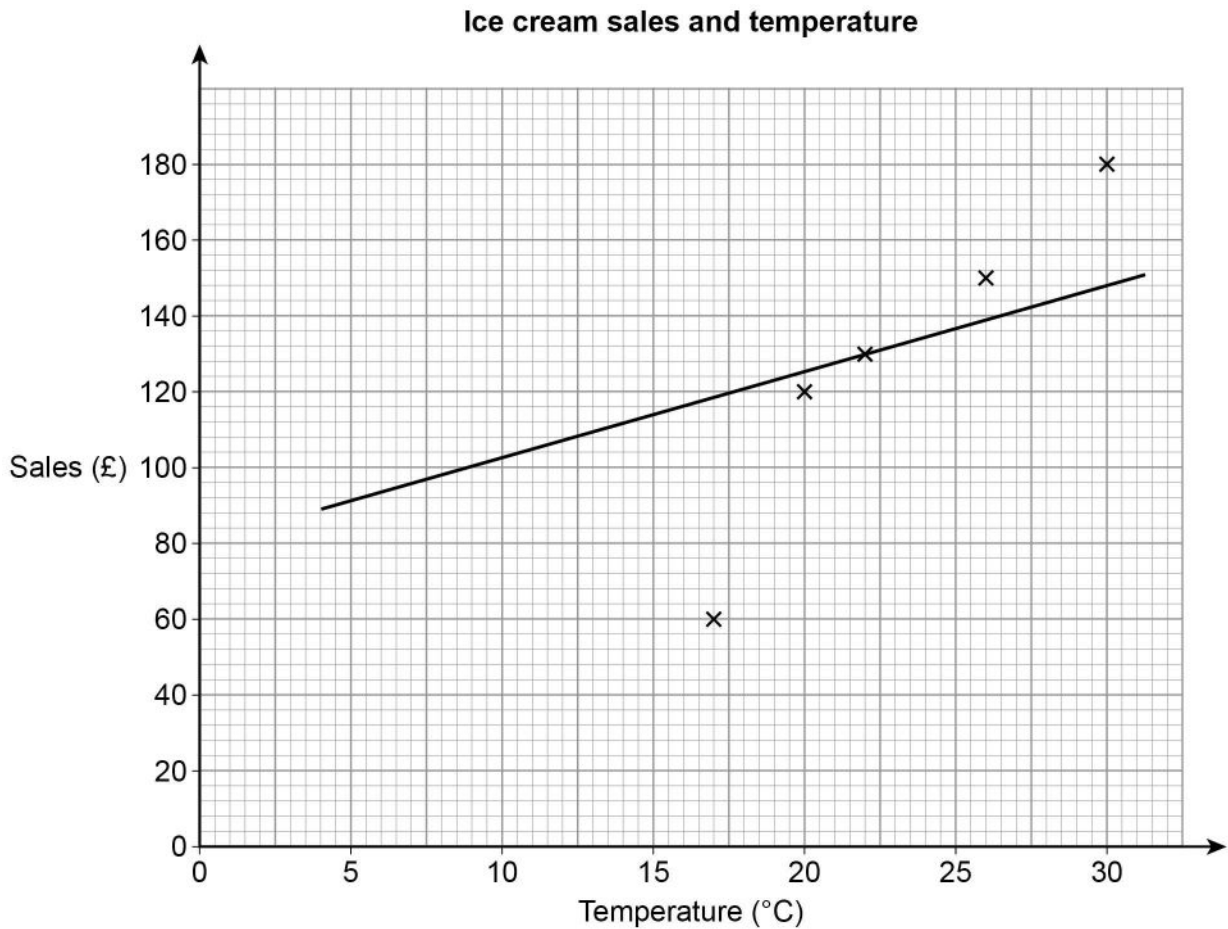
Lee sells ice creams.

The table shows the midday temperature and his sales for five days.

	Day 1	Day 2	Day 3	Day 4	Day 5
Temperature (°C)	30	26	17	22	20
Sales (£)	180	150	80	130	120

12 (a)

He draws this scatter graph and line of best fit.



Write down **two** mistakes he has made.

[2 marks]

Mistake 1 \_\_\_\_\_

\_\_\_\_\_

Mistake 2 \_\_\_\_\_

\_\_\_\_\_



**12 (b)** Lee wants to work out the range of the five temperatures.

His calculation is  $30 - 20 = 10$

Is his method correct?

Tick a box.

[1 mark]

Yes

No

Give a reason to support your answer.

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**12 (c)** The table shows Lee's costs.

Ingredients	15% of sales
Fuel	£7 per day

Work out his total profit for the five days.

[5 marks]

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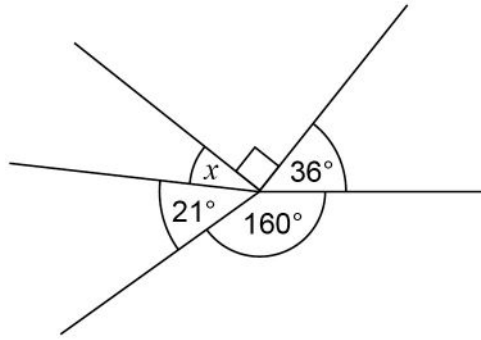
Answer £ \_\_\_\_\_

8

Turn over ►



13

Not drawn  
accuratelyWork out the size of angle  $x$ .**[2 marks]**

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Answer \_\_\_\_\_ degrees



**14** In this question, use

1 kilogram = 2.2 pounds

1 stone = 14 pounds

Change 70 kilograms into stones.

**[3 marks]**

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Answer \_\_\_\_\_ stones

**15** Here are some numbers.

10 13 15 20 27 39

10 15 20 is an arithmetic progression.

Use **three** of the numbers to make a different arithmetic progression.

Describe the rule.

**[2 marks]**

Answer \_\_\_\_\_

Rule \_\_\_\_\_

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7

Turn over ►



**16** The counters in a bag are red or blue.

One fifth of the counters are red.

Work out the ratio red counters : blue counters

Circle your answer.

**[1 mark]**

1 : 4

1 : 5

4 : 5

1 : 6

**17** Circle the fraction equal to 0.1%

**[1 mark]**

$\frac{1}{10}$

$\frac{1}{100}$

$\frac{1}{1000}$

$\frac{1}{10\,000}$



**18** Ellen works for a company that sells cars.

Her **monthly** pay is

- a salary of £1470
- 28% of the total **profit** the company makes from her sales
- a £250 bonus **if** she sells at least 15 cars.

The table shows information about the cars she sold last year.

Total cost to the company	Total income for the company	Number of months when she sold at least 15 cars
£464 500	£538 000	3

Was Ellen's total pay for the **year** more than £40 000?

You **must** show your working.

**[6 marks]**

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Answer \_\_\_\_\_



**19** Ben and Katy throw darts at a target.

Ben's ratio of hits to misses is 5 : 1

Katy's ratio of hits to misses is 3 : 1

Ben says,

"5 is bigger than 3, so I must have more hits than Katy."

Give an example to show that this might **not** be true.

**[2 marks]**

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- 20** A code has 4 digits.  
Each digit is a number from 0 to 9  
Digits may be repeated.

The code starts 5 4 1

5	4	1	
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- 20 (a)** Joe chooses a number at random for the last digit.  
Write down the probability that he chooses the correct number.

[1 mark]

Answer \_\_\_\_\_

- 20 (b)** Amy knows the last digit is odd but **not** 7  
She chooses a different odd number at random.  
What is the probability that she chooses the correct number?

[1 mark]

Answer \_\_\_\_\_

**Turn over for the next question**



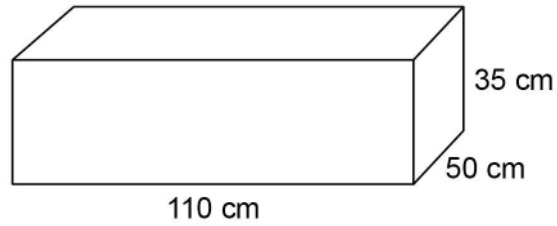
**21** Eva thinks she can save water by having a shower instead of a bath.

Eva's shower

uses 10.8 litres per minute

lasts for 8 minutes.

Eva assumes that the water in her bath is in the shape of this cuboid.



$1000 \text{ cm}^3 = 1 \text{ litre}$

**21 (a)** Using Eva's assumption, work out how many litres of water she saves by having a shower instead of a bath.

**[5 marks]**

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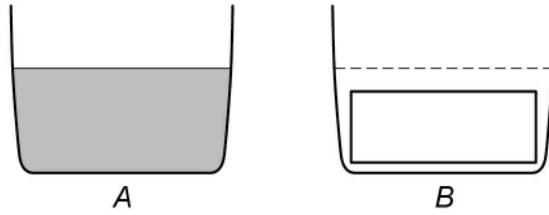
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Answer \_\_\_\_\_ litres



- 21 (b)** *A* shows the water level before Eva gets into the bath.  
*B* shows the cuboid in the empty bath.

Not drawn  
accurately



What does this tell you about the amount of water saved?

[1 mark]

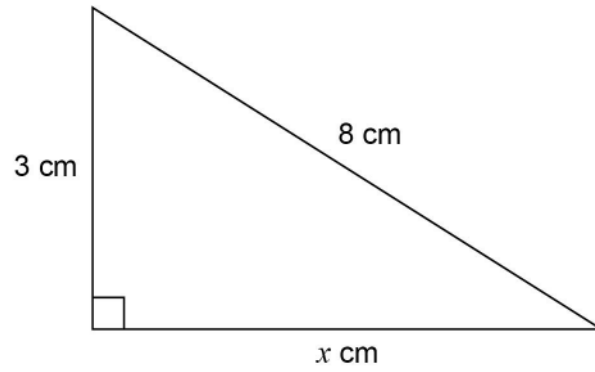
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**Turn over for the next question**



22

Not drawn  
accuratelyWork out the value of  $x$  as a decimal.**[3 marks]**

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Answer \_\_\_\_\_



**23**

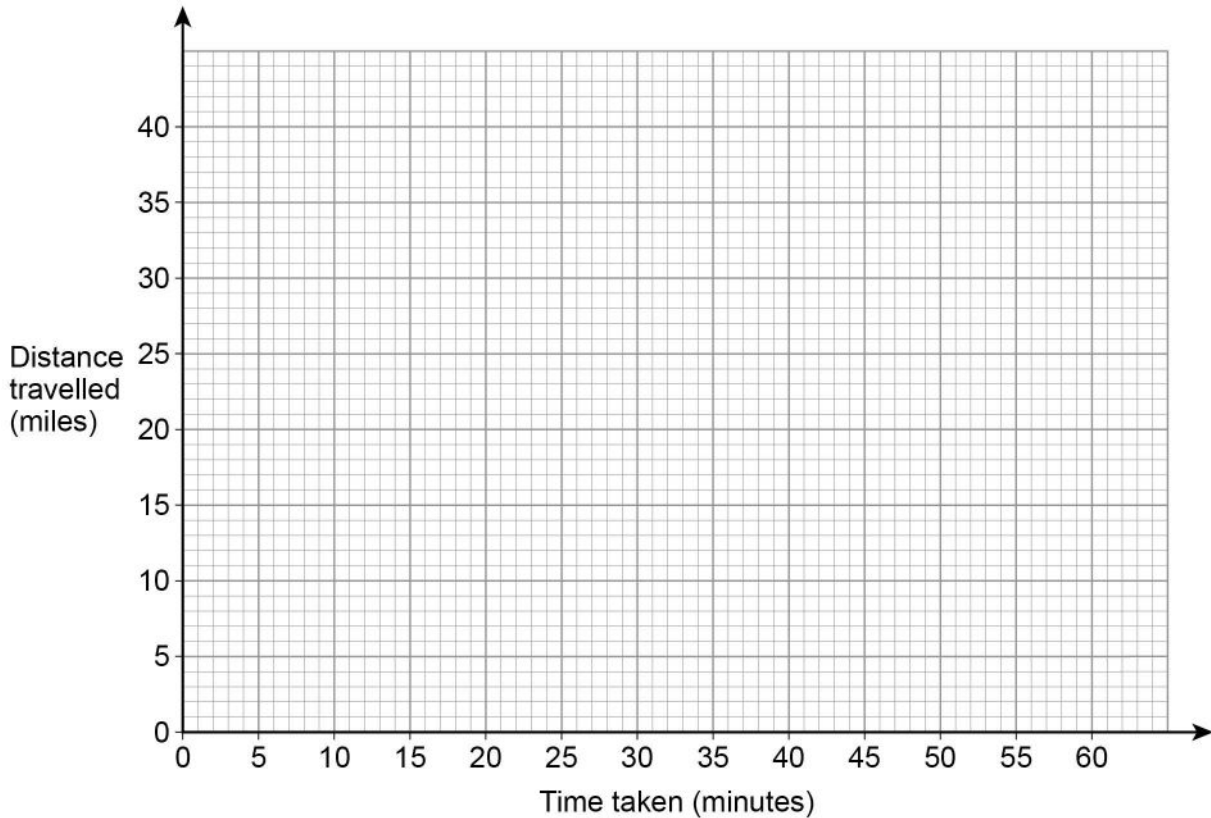
Lily goes on a car journey.

For the first 30 minutes her average speed is 40 miles per hour.

She then stops for 15 minutes.

She then completes the journey at an average speed of 60 miles per hour.

The total journey time is 1 hour.

**23 (a)** Draw a distance-time graph for her journey.**[3 marks]****23 (b)** Write down the average speed for the total journey.**[1 mark]**

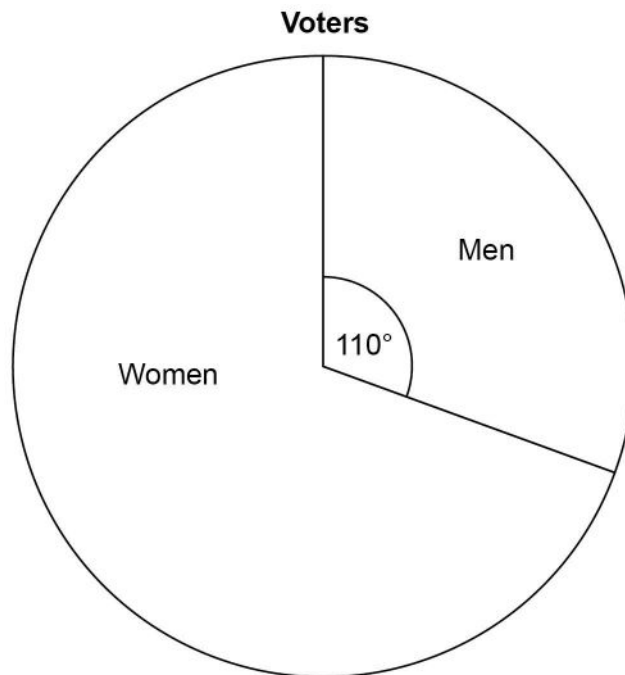
\_\_\_\_\_

Answer \_\_\_\_\_ mph

**Turn over for the next question****Turn over ►**

24

The pie chart shows information about voters in an election.



3360 **more** women voted than men.

Work out the total number of voters.

**[3 marks]**

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Answer \_\_\_\_\_



25 The table shows information about some CDs.

Type	Rock	Pop	Jazz
Number of CDs	2	$x$	$2x + 5$

A CD is chosen at random.

The probability it is **rock** is  $\frac{1}{20}$

Work out the probability it is jazz.

**[4 marks]**

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Answer \_\_\_\_\_

**Turn over for the next question**

7

**Turn over ►**



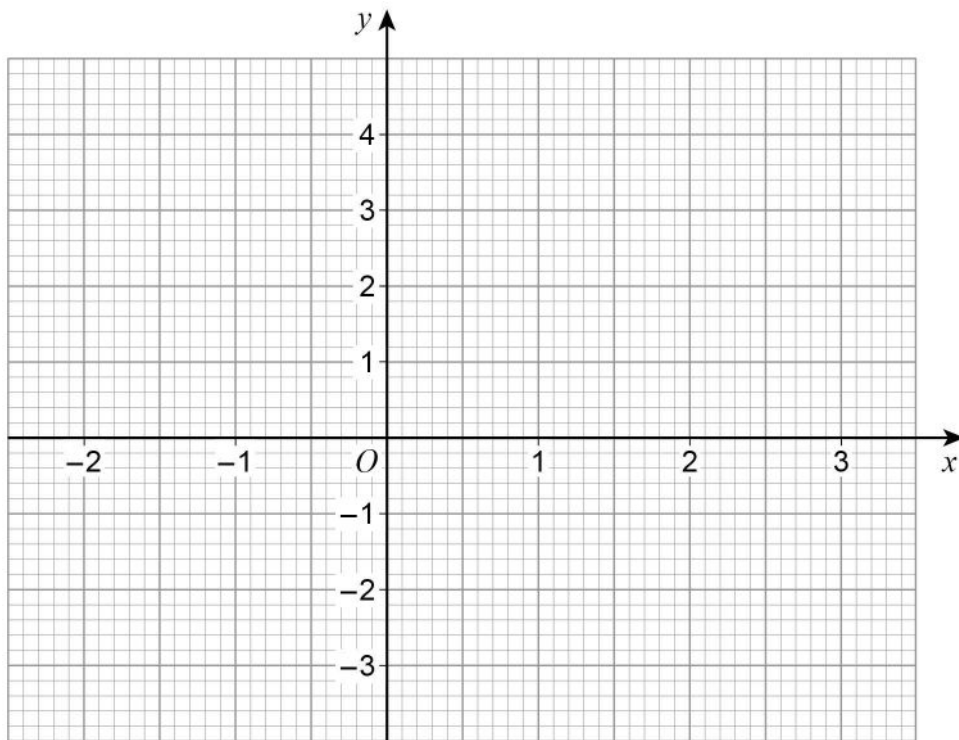
**26 (a)** Complete the table of values for  $y = x^2 - x - 2$

**[2 marks]**

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

**26 (b)** Draw the graph of  $y = x^2 - x - 2$  for values of  $x$  from -2 to 3

**[2 marks]**





27 Write these numbers in **descending** order.

9563

 $9.56 \times 10^3$  $9.56 \times 3^{10}$ **[2 marks]**

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Answer \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_

28 Rearrange  $y = \frac{x}{3} + 9$  to make  $x$  the subject.

**[2 marks]**

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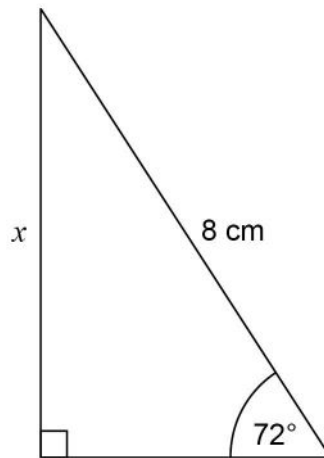
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Answer \_\_\_\_\_

**Turn over for the next question****Turn over ►**

29

Use trigonometry to work out the length  $x$ .Not drawn  
accurately**[2 marks]**

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Answer \_\_\_\_\_ cm

**END OF QUESTIONS**

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