

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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Pearson Edexcel Level 1/Level 2 GCSE (9–1)

Time 1 hour 30 minutes

Paper
reference

1MA1/1F

Mathematics

PAPER 1 (Non-Calculator)

Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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.CG Maths.

Hints



Pearson

Please note that these worked solutions have neither been provided nor approved by Pearson Education and may not necessarily constitute the only possible solutions. Please refer to the original mark schemes for full guidance.

Any writing in blue indicates what must be written in order to answer the questions and get the marks. The worked solutions have been designed to show the smallest amount of work which needs to be done to answer the question.

Anything written in green in a cloud doesn't have to be written in the exam.

Anything written in orange in a rectangle doesn't have to be written in the exam and is there to show what should be put into a calculator or measured using a ruler or protractor.

If you find any mistakes or have any requests or suggestions, please send an email to curtis@cgmaths.co.uk

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Write $\frac{3}{10}$ as a percentage.

To convert any fraction to a percentage it should be multiplied by 100. To multiply by a fraction, divide by the denominator then multiply by the numerator

..... %

(Total for Question 1 is 1 mark)

- 2 Write the following numbers in order of size.
Start with the smallest number.

8 -7 -10 1 0 -2

The more negative a number is or the less positive it is, the smaller it is

.....
(Total for Question 2 is 1 mark)

- 3 Write $\frac{9}{100}$ as a decimal.

To convert a fraction to a decimal the numerator should be divided by the denominator. To divide by 100 the decimal point should be moved 2 places to the left

.....
(Total for Question 3 is 1 mark)

- 4 Write 327 correct to the nearest ten.

Consider the units column to decide if the tens round up or down. 0, 1, 2, 3, 4 rounds down and 5, 6, 7, 8, 9 rounds up. Everything after the tens is set to 0

.....
(Total for Question 4 is 1 mark)

- 5 Write down the value of 7^2

$$7^2 = 7 \times 7$$

.....
(Total for Question 5 is 1 mark)

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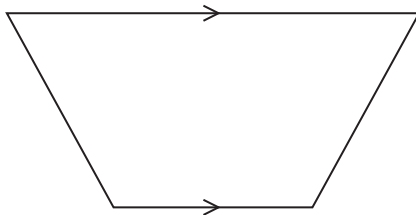


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6 (a) Write down the mathematical name of this quadrilateral.

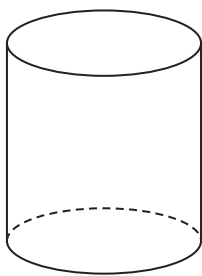


A four sided polygon with one set of parallel sides

Tr...

(1)

(b) Write down the mathematical name of this 3-D shape.



Cy...

(1)

(Total for Question 6 is 2 marks)

7 £42 is shared equally between 3 friends.

How much does each friend get?

3 | 42

£.....

(Total for Question 7 is 2 marks)

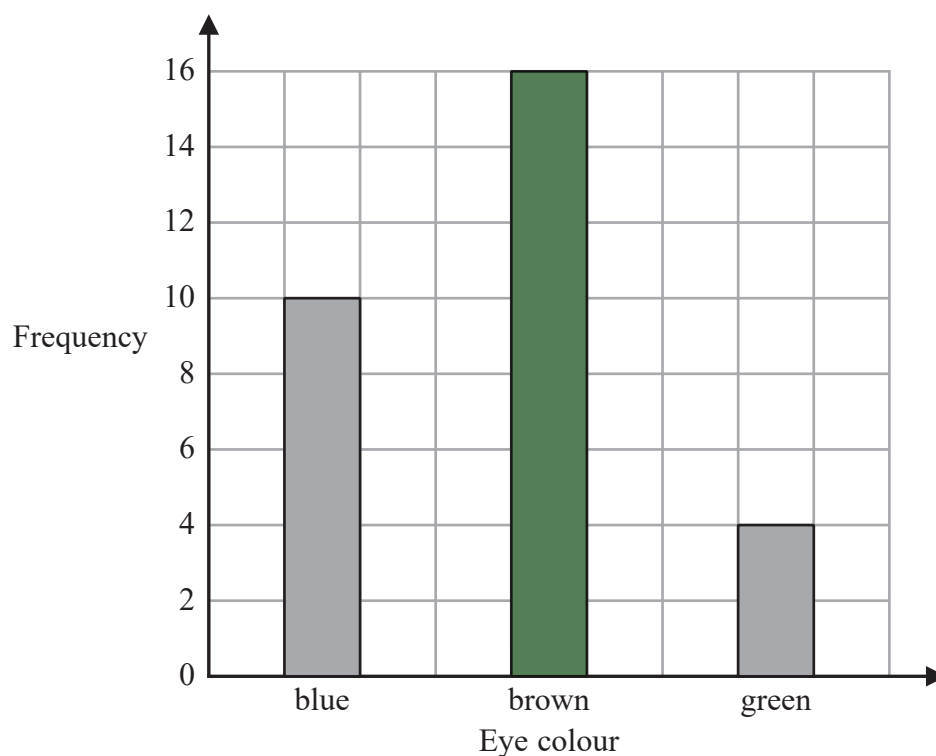


8 Grace recorded the eye colour of each of the students in her class.

The frequency table below shows her results.

Eye colour	Frequency
blue	10
brown	15
green	4

Grace then drew the bar chart below for this information.



Write down one thing that is wrong with this bar chart.

.....

.....

.....

(Total for Question 8 is 1 mark)

9 Danny buys,

- 1 loaf of bread for £1.20
- 1 bottle of milk for 70p
- 2 packets of cheese for £2.30 each packet

Danny pays with a £10 note.

He says,

“I should get £3.30 change.”

Is Danny correct?

You must show how you get your answer.

Adding the prices of all of what he bought works out the total cost.
Subtracting the total cost from the £10 works out the change

(Total for Question 9 is 3 marks)

10 Rachel records the temperature in her garden at noon each day.

On Monday, the temperature was 5°C .

On Tuesday, the temperature was 10° less than the temperature on Monday.

On Wednesday, the temperature was 3° greater than the temperature on Tuesday.

Find the difference between the temperature on Monday and the temperature on Wednesday.



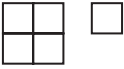
You must show all your working.

Subtract the 10 from the 5 to work out the temperature on Tuesday. Add 3 to this to work out the temperature on Wednesday. Difference = largest - smallest

..... $^{\circ}\text{C}$

(Total for Question 10 is 2 marks)

- 11 The pictogram shows information about the number of video games sold in a shop on Monday, on Tuesday and on Wednesday.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:

 represents 8 video games

- (a) How many video games were sold on Monday?

There are 2 whole symbols for Monday and each symbol represents 8 video games

.....
(1)

More video games were sold on Tuesday than on Wednesday.

- (b) How many more?

$$\frac{8}{4}$$

Dividing the worth of each whole symbol by 4 works out that each quarter of a symbol is worth 2

Count how many more quarters Wednesday has than Tuesday then work out this many lots of 2

.....
(2)

On Thursday and Friday, a total of 32 video games were sold in the shop.

$\frac{1}{4}$ of these 32 video games were sold in the shop on Thursday.

- (c) Complete the pictogram for Thursday and Friday.

Dividing the 32 by 8 works out how many symbols represent 32. $\frac{1}{4}$ of these are for Thursday

.....
(3)

(Total for Question 11 is 6 marks)

12 There are two drama groups in a school.

In one group there are 36 boys and 48 girls.

In the other group, $\frac{3}{7}$ of the students are boys and the rest of the students are girls.

Ann says,

“The ratio of the number of boys to the number of girls is the same for both groups.”

Is Ann correct?

You must show how you get your answer.

Expressing the number of boys as a fraction of the number of students in the first group. Simplify the fraction. If it is $\frac{3}{7}$ Ann is correct

(Total for Question 12 is 3 marks)

13 A number sequence starts 1 2 4

Emma says that the next term is 7

(a) Explain why Emma may be correct.

$$\begin{array}{l} 1 + 1 = 2 \\ 2 + 2 = 4 \\ 4 + 3 = 7 \end{array}$$

(1)

Here are the first four terms of the sequence of triangle numbers.

$$\begin{array}{cccc} 1 & 3 & 6 & 10 \\ +2 & +3 & +4 & \end{array}$$

(b) Find the 8th term of this sequence.

(2)

(Total for Question 13 is 3 marks)

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14 3 kg of carrots cost £1.80
2 kg of carrots and 5 kg of potatoes cost a total of £3.45

Work out the total cost of 4 kg of carrots and 2 kg of potatoes.
You must show all your working.

- 1) Dividing the £1.80 by 3 works out the cost of 1kg of carrots
- 2) Multiplying the cost of 1kg of carrots by 2 works out the cost of 2kg of carrots
- 3) Subtracting the cost of 2kg of carrots from the total of £3.45 leaves the cost of 5kg of potatoes
- 4) Dividing the cost of 5kg of potatoes by 5 works out the cost of 1kg of potatoes
- 5) Multiplying the cost of 1kg of carrots by 4 works out the cost of 4kg of carrots
- 6) Multiplying the cost of 1kg of potatoes by 2 works out the cost of 2kg of potatoes
- 7) Adding the cost of 4kg of carrots and 2kg of potatoes works out the total cost

£.....

(Total for Question 14 is 4 marks)



15 (a) Expand $2(a + d)$

.....
(1)

(b) Factorise $6y^2 - 5y$

Put into brackets. Find a common factor of both terms then bring this outside the bracket. Divide both terms by the common factor and leave in the bracket

.....
(1)

(c) Solve $4x - 7 = 37$

Follow BIDMAS backward and do the opposite operations to both sides to eliminate everything apart from x on the left

$x =$
(2)

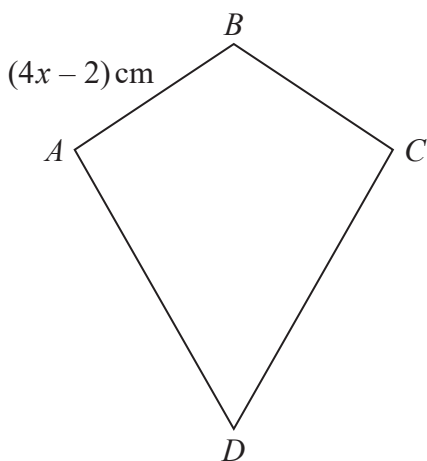
(Total for Question 15 is 4 marks)

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16 $ABCD$ is a kite.



$AB = (4x - 2)$ cm

Jasper says that x could be 0.5

(a) Explain why Jasper cannot be correct.

Substitute x for 0.5 and find what the length of AB would be

(1)

$AD = 3AB$

The kite has a perimeter of 64 cm.

(b) Find the value of x .

$AB = BC$ and $AD = CD$. Express the perimeter of the kite in terms of x , simplify the expression then set it equal to the 64cm. Rearrange the equation and solve

$x = \dots\dots\dots$

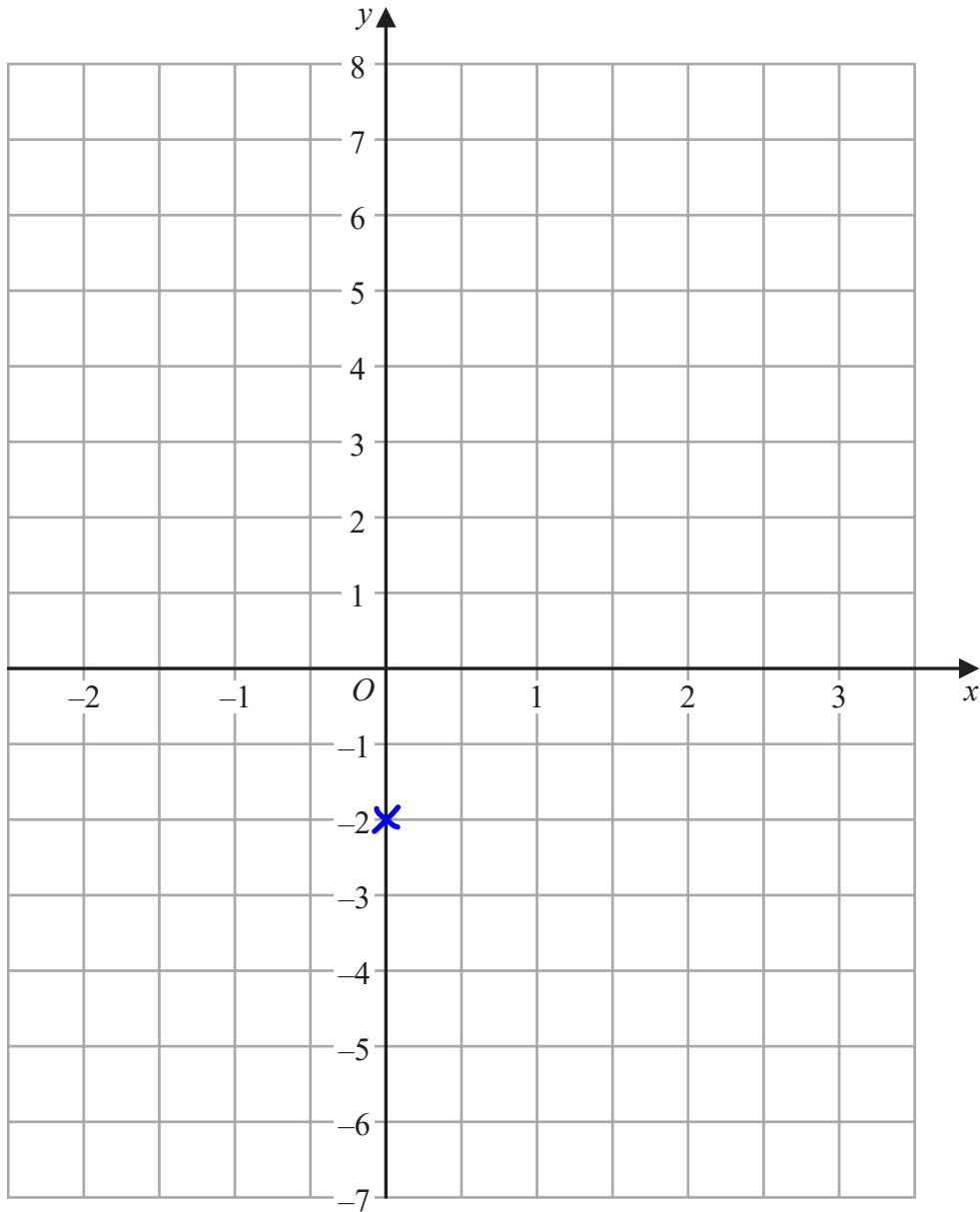
(3)

(Total for Question 16 is 4 marks)



18 On the grid below, draw the graph of $y = 2x - 2$ for values of x from -2 to 3

It is a straight line as it is in the form $y = mx + c$. So only two points need to be plotted and then a straight line can be drawn through them. When $x = 0$, $y = 2(0) - 2 = -2$. Work out y for another value of x



(Total for Question 18 is 3 marks)

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- 19 Robin buys a watch for £80
He sells the watch for £56

Work out his percentage loss.

Express his loss as a fraction of the original value and simplify the fraction.
A fraction can be converted into a percentage by multiplying it by 100

.....%

(Total for Question 19 is 3 marks)

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20 (a) Work out 3.67×4.2

$$\begin{array}{r} 3.67 \\ \times 4.2 \\ \hline \end{array}$$

There are 2 decimal places in 3.67 and 1 decimal place in 4.2. There are 3 decimal places in total therefore there should be 3 decimal places in the answer

.....
(3)

(b) Work out $59.84 \div 1.6$

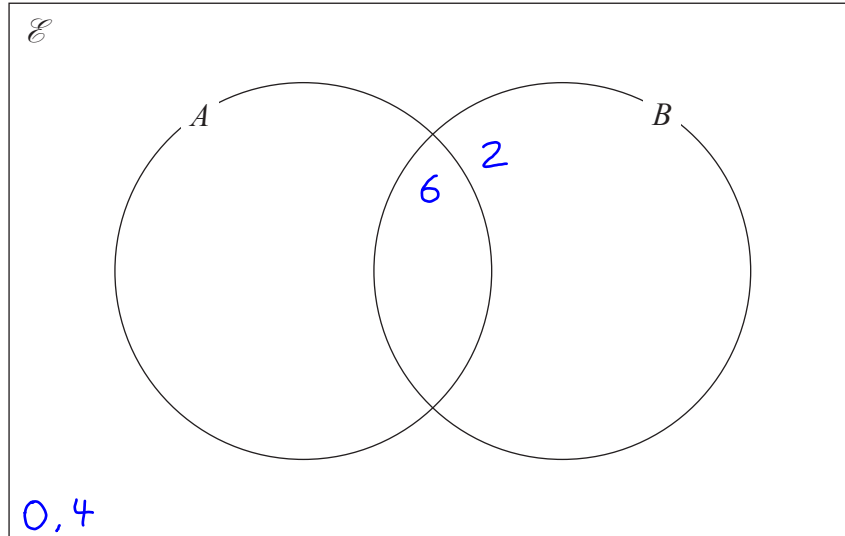
$59.84/1.6 = 598.4/16$ as they are equivalent fractions. Eliminating the decimal from the denominator makes the division much easier

.....
(3)

(Total for Question 20 is 6 marks)

- 21 $\mathcal{E} = \{\text{even numbers less than } 19\}$
 $A = \{6, 12, 18\}$
 $B = \{2, 6, 14, 18\}$

Complete the Venn diagram for this information.



(Total for Question 21 is 3 marks)

- 22 Work out $4\frac{1}{5} - 2\frac{2}{3}$

Give your answer as a mixed number.

Convert both into improper fractions by multiplying the whole number by the denominator then adding the result to the numerator. Make the denominators the same by finding a common multiple of 5 and 3 and multiplying the denominators to get this. Multiply each numerator by the same amount as their denominator was multiplied by to keep the fractions equivalent. Subtract the numerators and keep the denominator the same. Convert into a mixed number by dividing the numerator by the denominator to find the whole number and leave the remainder in the fraction

(Total for Question 22 is 3 marks)

- 23 At the end of 2017
the value of Tamara's house was £220 000
the value of Rahim's house was £160 000

At the end of 2019
the value of Tamara's house had decreased by 20%
the value of Rahim's house had increased by 30%

At the end of 2019, whose house had the greater value?
You must show how you get your answer.

Find the value of both houses at the end of 2019 to work out which is greater.
To decrease by 20%, find 20% then take it away from the original value. To
find 20%, work out 10% then multiply by 2. To find 10%, divide by 10

(Total for Question 23 is 4 marks)

24 Rosie, Matilda and Ibrahim collect stickers.

$$\begin{array}{ccccc} \text{number of stickers} & & \text{number of stickers} & & \text{number of stickers} \\ \text{Rosie has} & : & \text{Matilda has} & : & \text{Ibrahim has} \end{array} = 4:7:15$$

Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.
How many more?

- 1) Work out how many parts Ibrahim has more than Matilda. This many parts represent the 24 stickers.
- 2) Work out what 1 part of the ratio is worth.
- 3) Work out how many parts Ibrahim has more than Rosie.
- 4) Work out how many stickers these parts are worth

.....
(Total for Question 24 is 3 marks)

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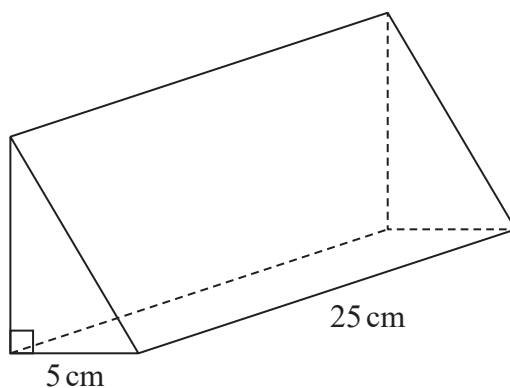


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25 The diagram shows a prism.



The cross section of the prism is a right-angled triangle.
The base of the triangle has length 5 cm

The prism has length 25 cm
The prism has volume 750 cm^3

Work out the height of the prism.

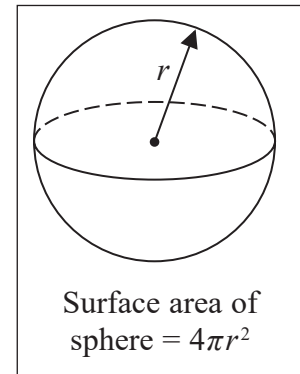
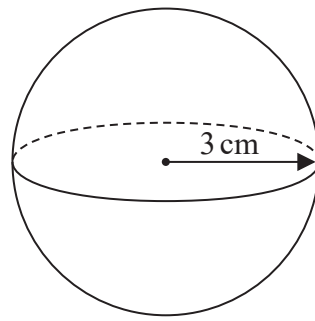
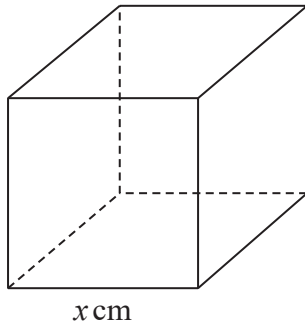
Express the volume of the prism in terms of the height, h , then set it equal to the actual volume. Volume of prism = area of cross section \times length. The length is 25cm. The cross section is a triangle. Area of triangle = $\frac{1}{2} \times$ base \times height. The base is 5cm. The height is h . Rearrange to make h the subject by dividing both sides by everything it is multiplied by. To divide by a fraction, keep the first number, change the division to a multiplication and flip the fraction

..... cm

(Total for Question 25 is 3 marks)



26 The diagram shows a cube with edges of length x cm and a sphere of radius 3 cm.



The surface area of the cube is equal to the surface area of the sphere.

Show that $x = \sqrt{k\pi}$ where k is an integer.

The cube has 6 square faces. Area of square = length². The length is x . Express the surface area of the cube then set this equal to the surface area of the sphere, which is expressed by using the formula given and substituting in 3cm as the radius. Rearrange to make x the subject then simplify until it is in the desired form

(Total for Question 26 is 4 marks)

27 Freddie measured the length of a pencil as 7.2 cm correct to 1 decimal place.

Complete the error interval for the length, p cm, of the pencil.

Find the bounds by adding and subtracting half of the resolution.
The resolution is 0.1 as it is correct to 1 decimal place

Lower bound $\leq p <$ Upper bound

(Total for Question 27 is 2 marks)

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28 The equation of a straight line **L** is $y = 3 - 4x$

(i) Write down the gradient of **L**.

The general equation of a straight line is $y = mx + c$,
where m is the gradient and c is the y -intercept

.....
(1)

(ii) Write down the coordinates of the point where **L** crosses the y -axis.

When the line crosses the y -axis, x is 0. Use the equation to find y

(.....^o.....,)
(1)

(Total for Question 28 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

