



General Certificate of Secondary Education  
November 2024

Centre Number

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Candidate Number

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## Mathematics

Unit M1  
(With calculator)

Foundation Tier

[GMC11]



**MV24**

**TUESDAY 19 NOVEMBER, 9.15am–11.00am**

### Time

1 hour 45 minutes, plus your additional time allowance.

### Instructions to Candidates

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

**You must answer the questions in the spaces provided.**

**Do not write on blank pages.**

Complete in black ink only.

**Do not write with a gel pen.**

Questions which require drawing or sketching should be completed using an HB pencil.

All working **must** be clearly shown in the spaces provided. Marks may be awarded for partially correct solutions.

You **may** use a calculator for this paper.

Answer **all thirty-two** questions.

## **Information for Candidates**

The total mark for this paper is 100.

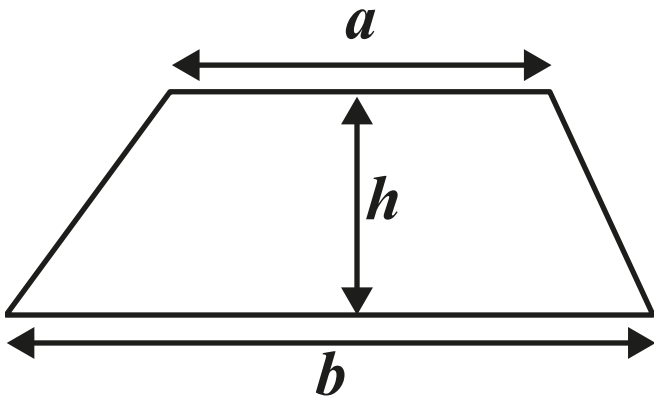
Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

You should have a calculator, ruler, compasses and a protractor.

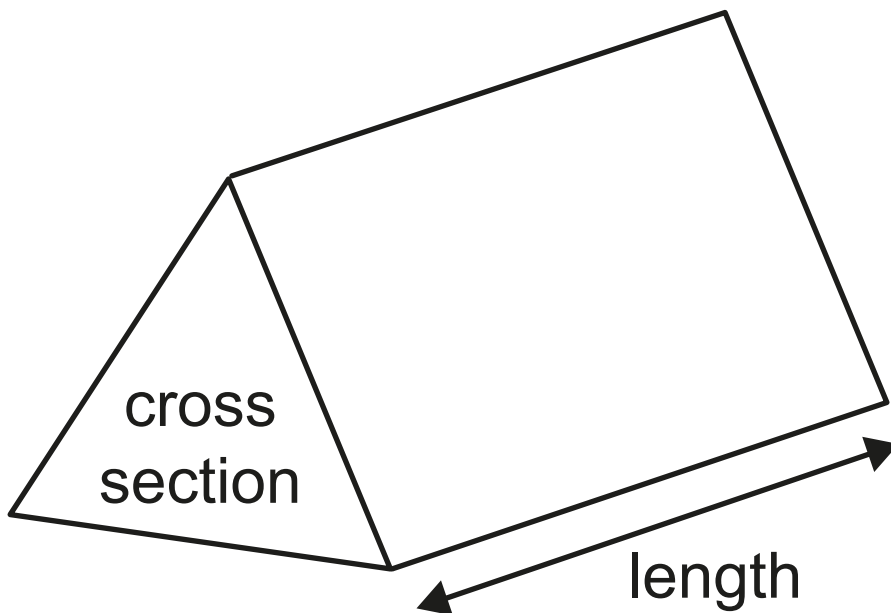
The Formula Sheet is on page 3.

# Formula Sheet

**Area of trapezium** =  $\frac{1}{2}(a + b)h$



**Volume of prism** = area of cross section  $\times$  length



1 Lunchtime Specials cost £2.75 each.

Paul bought five Lunchtime Specials.

How much change did he get from £20?  
[2 marks]

Answer £ \_\_\_\_\_

**2** A washing machine was on offer in two different shops.

Shop **A** was offering a discount of  $\frac{1}{4}$

Shop **B** was offering a discount of 20%

Explain which shop was offering the greater percentage discount. [2 marks]

Answer Shop \_\_\_\_\_ because \_\_\_\_\_

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**3** Insert **factor** or **multiple** to make each statement correct. [1 mark for each]

14 is a \_\_\_\_\_ of 7

14 is a \_\_\_\_\_ of 28

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**(Questions continue overleaf)**

4 The prices of some items in a shop are shown below.

Chicken fillets	£6.50 per kg
Roast potatoes	£2.30 per kg
Pepper sauce	£1.80 per tub

A customer bought      2 kg of chicken fillets  
   3 kg of roast potatoes  
   1 tub of pepper sauce

The shop has a loyalty scheme which gives  
1 loyalty point for every £5 spent.

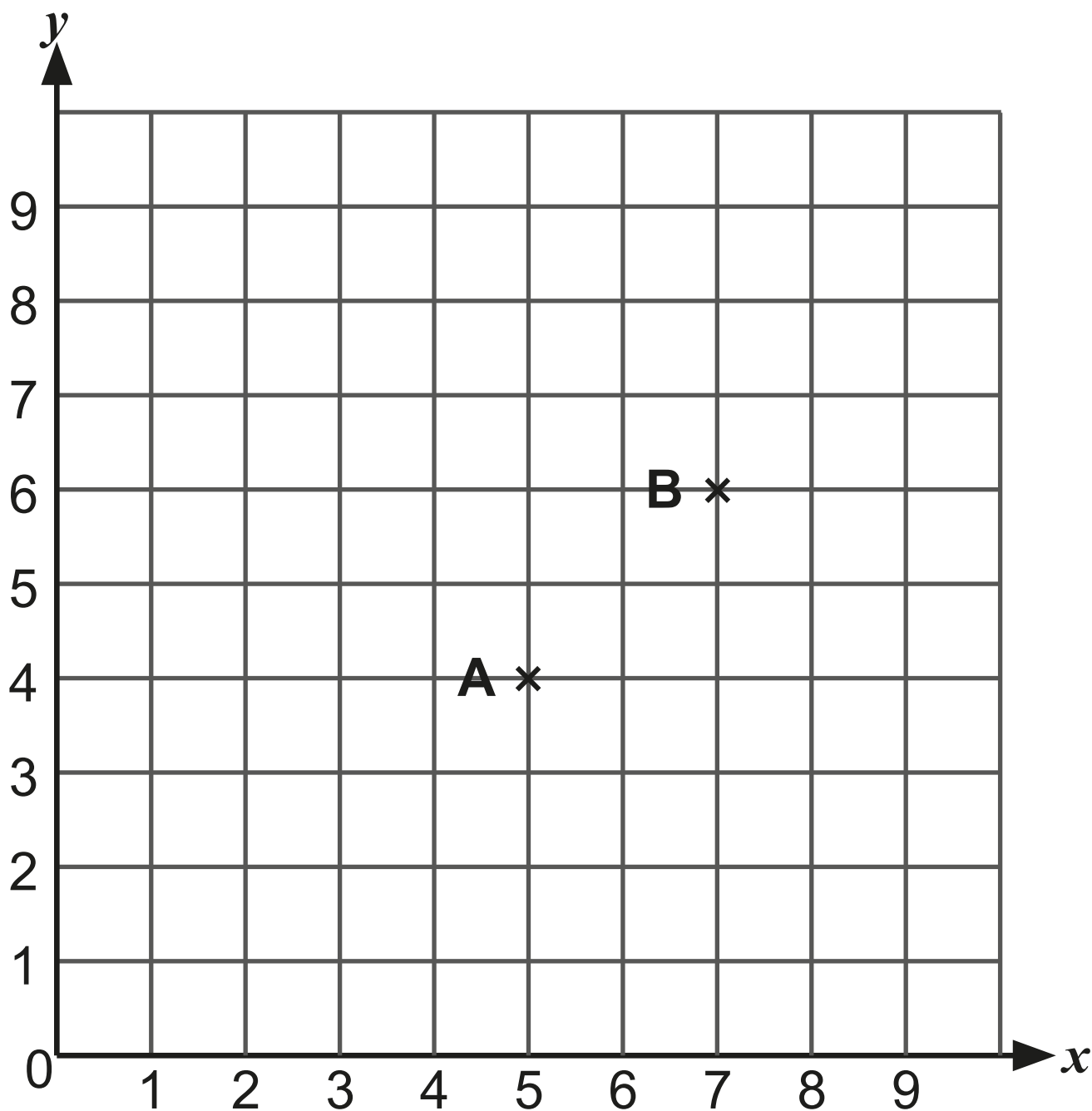


How many loyalty points will this customer get? [4 marks]

**Show your working out clearly.**

Answer \_\_\_\_\_ loyalty points

- 5** The points  $A(5, 4)$  and  $B(7, 6)$  are plotted on the grid below.



Points **A**, **B** and **C** all lie in a straight line and are the same distance apart.

(a) Plot point **C** on the grid opposite.  
[1 mark]

(b) Write down the coordinates of point **C** which you plotted. [1 mark]

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )

- 6** Choose the most appropriate metric unit from the box to complete the sentences.  
[1 mark for each]

$\text{m}^3$	kg	m
km	ml	$\text{cm}^2$

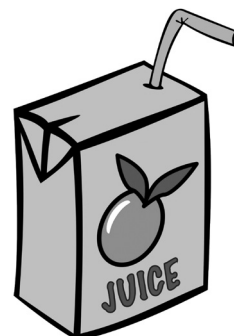
**(a)** The length of a road is  
6 \_\_\_\_\_



**(b)** The volume of a shipping container is 50 \_\_\_\_\_



**(c)** A carton of juice contains  
250 \_\_\_\_\_



**7** Jonny was born on 15 April 1992

**(a)** How many years old is he now?  
[1 mark]

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

Kerry is exactly 5 years older than Jonny.

**(b)** In which year was she born? [1 mark]

Answer \_\_\_\_\_

Les is 13 months younger than Jonny.

**(c)** In which month was he born? [1 mark]

Answer \_\_\_\_\_

- 8 Carl is planning to buy a used car.  
The table below shows his options.

Car	Price (£)	Age (years)	Mileage	Engine size (litres)	Transmission	Fuel type
SUV	20 499	6	77 896	1.7	Manual	Diesel
Crossover	8 999	7	90 000	2.0	Manual	Petrol
Hatch	14 299	5	57 300	1.6	Manual	Petrol
GT	10 999	7	73 210	2.0	Automatic	Diesel
4WD	29 499	5	42 185	2.8	Automatic	Diesel
Sports	10 199	6	20 177	2.0	Automatic	Petrol

**(a)** Which diesel car has least mileage?  
[1 mark]

Answer \_\_\_\_\_

**(b)** Which is the cheapest car with an engine size of 2 litres and automatic transmission? [1 mark]

Answer \_\_\_\_\_

**(c)** Carl decides to buy a car costing less than £20 000 that is 5 or 6 years old.

Which two cars can he buy? [1 mark]

Answer \_\_\_\_\_

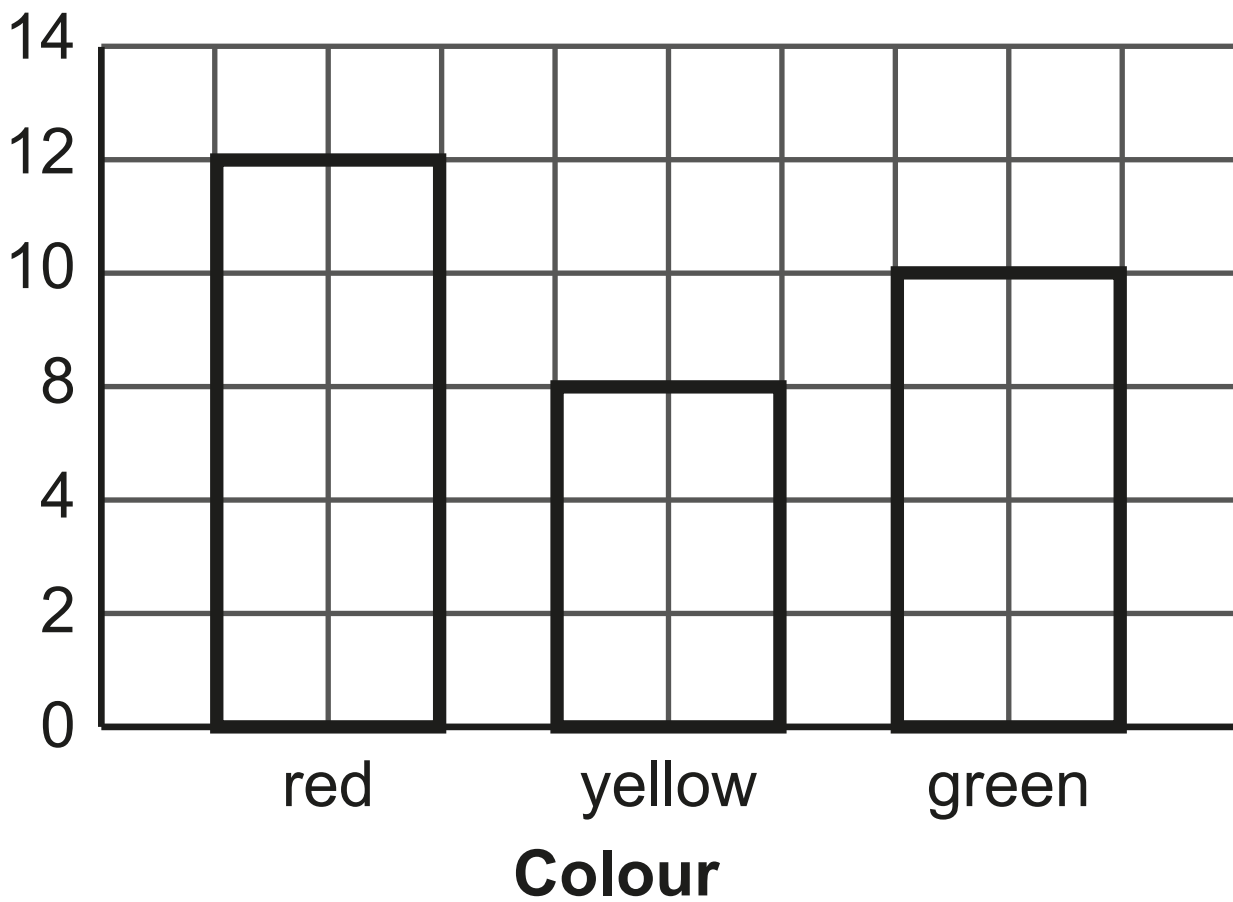
or \_\_\_\_\_

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- 9 (a) Write down **two** things which are wrong with this bar chart. [2 marks]

**Mr Dali's Colouring Pencils**

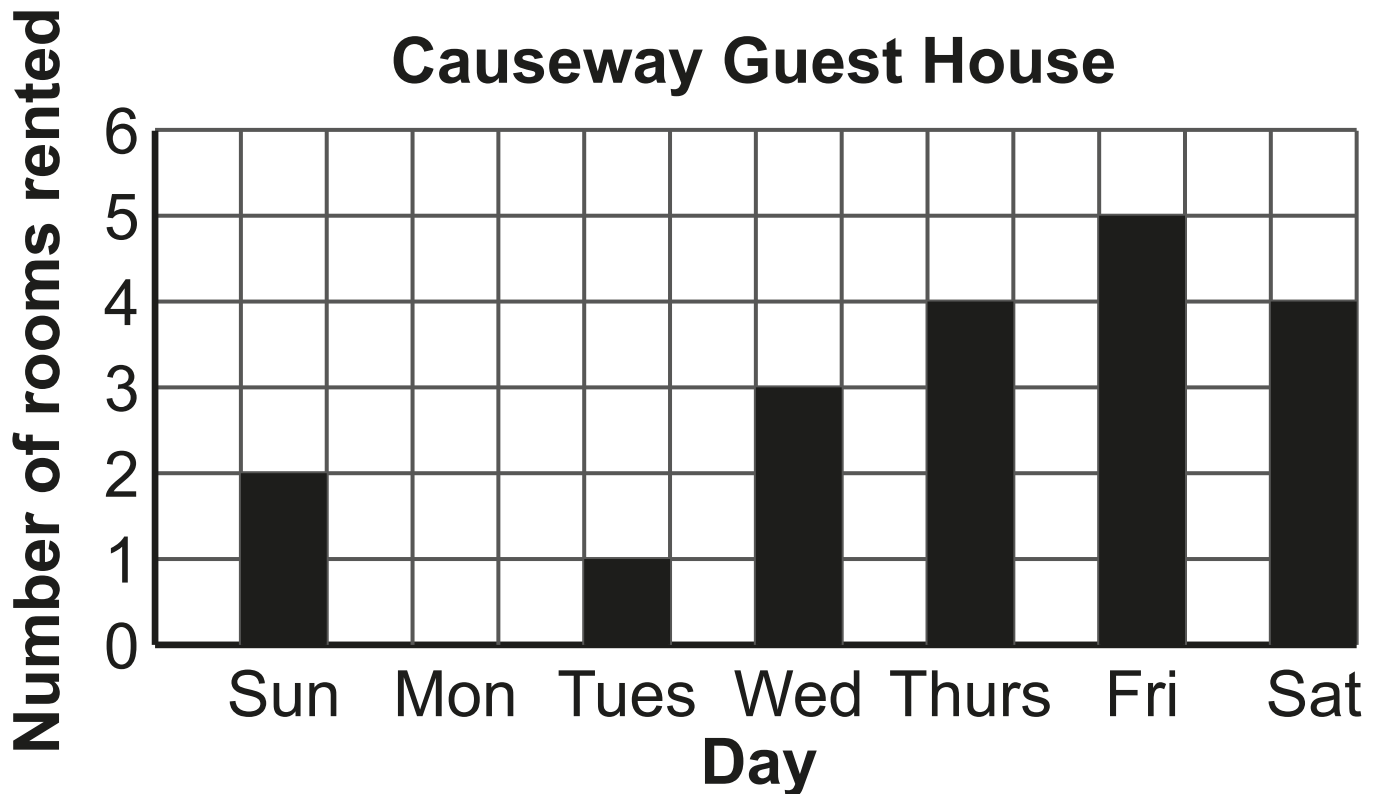


Answer

1. \_\_\_\_\_
2. \_\_\_\_\_

**(b)** The number of rooms rented during one week in the Causeway Guest House are shown in the bar chart below.

Monday's information is missing.

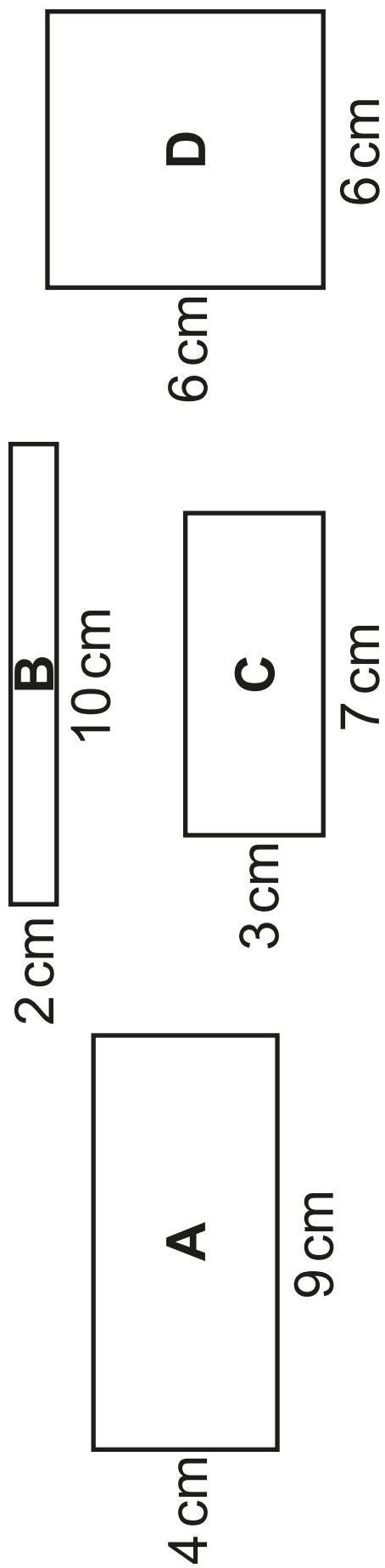


23 rooms in total were rented.

How many rooms were rented on Monday? [2 marks]

Answer \_\_\_\_\_ rooms

10 (a) Four shapes are shown.



**(i)** What is the perimeter of rectangle **C**?  
[1 mark]

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

**(ii)** Which two shapes have the same area?  
[1 mark]

Answer Shapes \_\_\_\_\_ and \_\_\_\_\_

**(b)** A rectangle, **E**, has an area of  $42\text{ cm}^2$

It has a length of 6 cm.

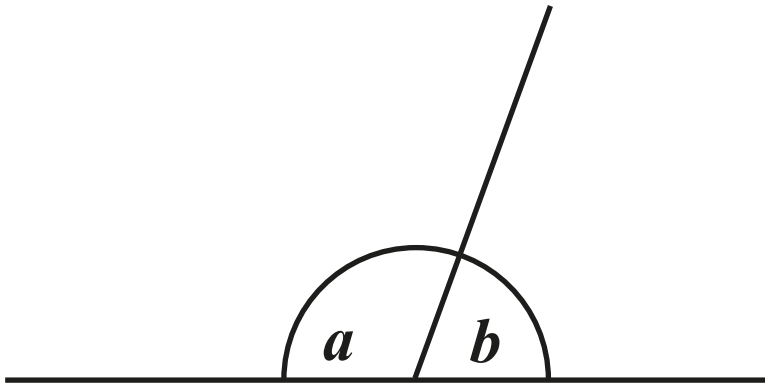
What is the perimeter of this rectangle?  
[2 marks]

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

**11** Angle  $a$  is twice the size of angle  $b$ .

The diagram is not drawn accurately.

What size is angle  $a$ ? [2 marks]



Answer  $a = \underline{\hspace{2cm}}^\circ$

**12** The weights, in kg, of rugby players are shown below.

125	111	125	117	116	108	105	107
-----	-----	-----	-----	-----	-----	-----	-----

**(a)** What is the range of the weights?  
[1 mark]

Answer \_\_\_\_\_ kg

**(b)** Calculate the mean weight. [3 marks]

Answer \_\_\_\_\_ kg

**(c)** Find the median weight. [2 marks]

Answer \_\_\_\_\_ kg



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**(Questions continue overleaf)**

**13** The final scores in a golf competition are shown below.

Team Europe		Team USA	
Rory	+ 7	James	− 2
Tommy	− 3	Jordan	+ 4
Justin	− 5	Scottie	− 6
Seve	+ 2	Patrick	+ 1

**(a)** The best player was the player with the **lowest** score.

Who was the best player? [1 mark]

Answer \_\_\_\_\_

**(b)** What was the difference between the scores for Rory and Justin? [1 mark]

Answer \_\_\_\_\_

**(c)** The team with the **lowest total** score won the competition.

Which team won the competition?  
[2 marks]

**Show your working out clearly.**

Answer Team \_\_\_\_\_ because  
\_\_\_\_\_

14  $\frac{2}{3}$  of the students in a school were entitled to free school meals.

There were 741 students in the school.

How many students were entitled to free school meals? [2 marks]

Answer \_\_\_\_\_

**15** Two shops were offering money off a games console.

Shop	Price	Discount
Play Away	£580	15%
Game Garden	£560	20%

Which shop offered more money off?  
[3 marks]

**Show your working out clearly.**

Answer \_\_\_\_\_

**16** Maisie has 33 vitamin tablets.

She takes 7 vitamin tablets each week.

How many vitamin tablets will she have left over after 4 weeks? [2 marks]

Answer \_\_\_\_\_

**17** Damian is a delivery driver for a food takeaway.

He is paid **£3** for each local delivery (L) and **£5** for each non-local delivery (N).

To calculate the total amount of money (T) he is paid, Damian uses the formula

$$\mathbf{T = 3L + 5N}$$

Use the formula to calculate the total amount he is paid when he makes 8 local deliveries and 5 non-local deliveries.  
[2 marks]

Answer **£** \_\_\_\_\_

**18** Matthew, Karen and Jamie were trying to work out the value of  $5^3$

Matthew thought it was 15

Karen thought it was 125

Jamie thought it was 8

Who was correct? [2 marks]

**Explain your answer clearly.**

Answer \_\_\_\_\_ was correct  
because \_\_\_\_\_



**19** Ciara and Len were each given £40 as a Christmas present.

Ciara spent  $\frac{17}{20}$  of the money she was given.

Len spent 80% of the money he was given.

Who spent more of their money?  
[2 marks]

**Explain your answer clearly.**

Answer \_\_\_\_\_ because \_\_\_\_\_  
\_\_\_\_\_

## **20** At a paint shop

Emulsion paint costs £4.25 per litre

Gloss paint costs £6 per litre

Masonry paint costs £10.50 per litre

Orla bought 12 litres of emulsion paint,  
2.5 litres of gloss paint and some masonry  
paint.

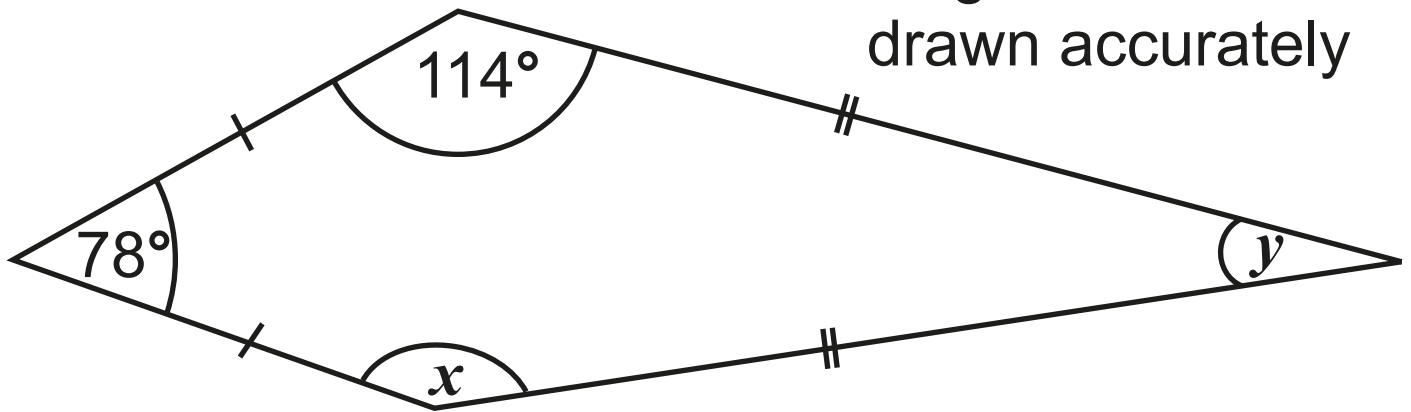
She paid £134.25 in total.

How many litres of masonry paint did she buy? [4 marks]

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

21

diagram not  
drawn accurately



The diagram shows the size of two angles in a kite.

Find the size of

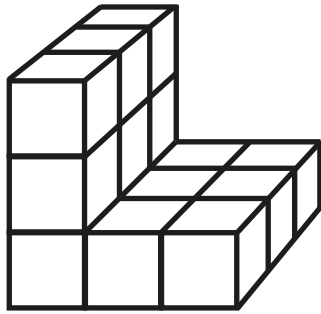
(a) angle  $x$  [1 mark]

Answer \_\_\_\_\_ $^\circ$

**(b) angle  $y$  [2 marks]**

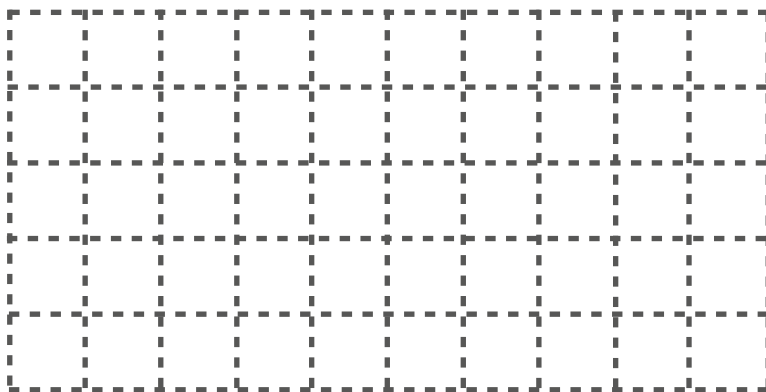
Answer \_\_\_\_\_°

**22** The diagram below shows a 3D shape made with centimetre cubes.

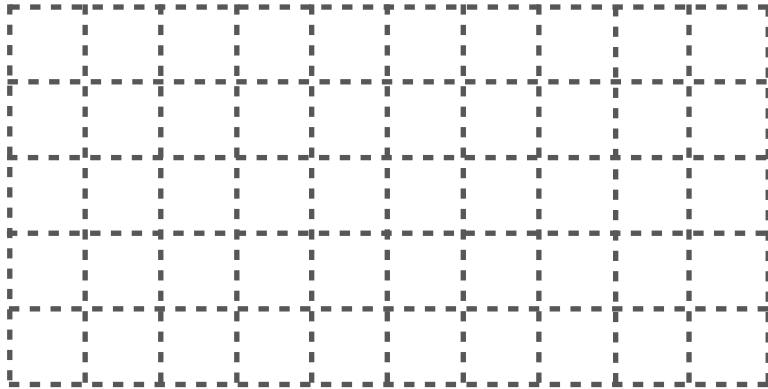


**Front**

**(a)** On the centimetre square grid below, draw the front elevation of the shape.  
[2 marks]



**(b)** On the centimetre square grid below,  
draw the plan of the shape. [1 mark]



**23** The incomplete two-way table shows some information about cinema-goers one Saturday.

	<b>Child</b>	<b>Adult</b>	<b>Senior citizen</b>
<b>Male</b>		33	18
<b>Female</b>	78	27	

**(a)** Use the following information to complete the two-way table.

In total there were 30 senior citizens.

There were 4 times as many children as senior citizens. [2 marks]



**(b)** A child ticket is £3, an adult ticket is £7 and a senior citizen ticket is £5.50

The manager claims there was over £1000 in ticket sales.

Is he correct? [2 marks]

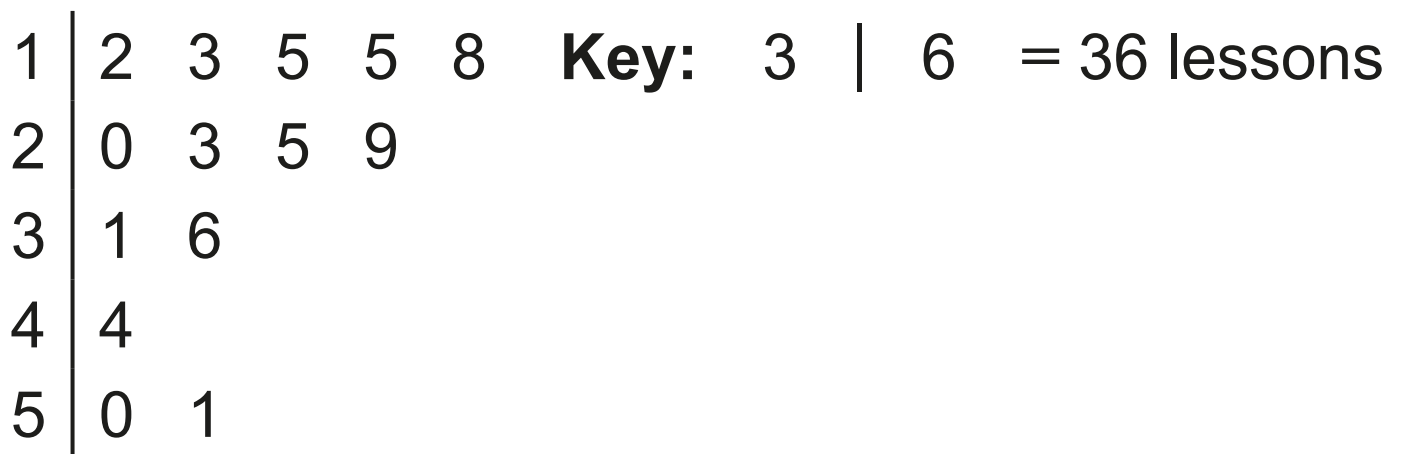
**Show your working out clearly.**

Answer \_\_\_\_\_ because \_\_\_\_\_

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**24** A group of people were surveyed about the number of driving lessons they had before passing their driving test.

The results are shown in the stem and leaf diagram.



**(a)** How many people were asked?  
[1 mark]

Answer \_\_\_\_\_

**(b)** What is the range? [1 mark]

Answer \_\_\_\_\_

**(c)** Find the median. [1 mark]

Answer \_\_\_\_\_

**25 (a)** Simplify  $7g - 5h - 2g + 8h$  [2 marks]

Answer \_\_\_\_\_

**(b)** Solve  $4f + 9 = 37$  [2 marks]

Answer  $f =$  \_\_\_\_\_

**(c)** Expand  $3(4e + 5)$  [1 mark]

Answer \_\_\_\_\_

**(d) Factorise  $18c - 30$  [1 mark]**

Answer \_\_\_\_\_

**26** A club has 160 members.

104 members attended an event.

**(a)** What **percentage** of club members attended the event? [2 marks]

Answer \_\_\_\_\_ %

**(b)** The cost per ticket to attend the event last year was £7.50

This year it increased by 18%

How much did it cost per ticket to attend the event this year? [3 marks]

Answer £ \_\_\_\_\_

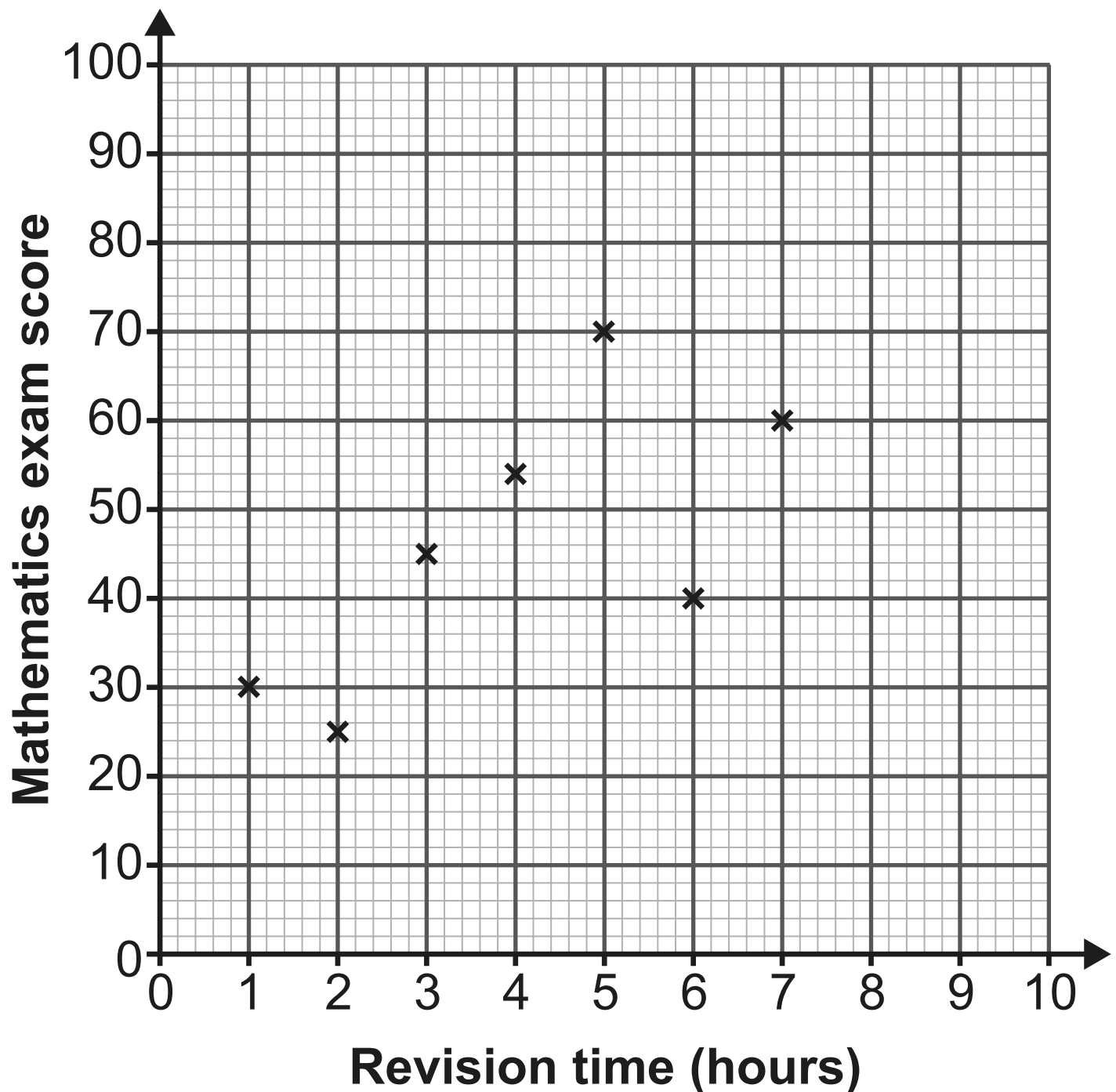
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**27** Astrid says  $\sqrt{16} + 3$  can equal 7 or  $-1$

Explain why she is correct. [2 marks]

**28** The scatter graph shows the number of hours of revision completed by seven students and their Mathematics exam scores.



**(a)** Jake sat the exam late and his data was not recorded on the graph.

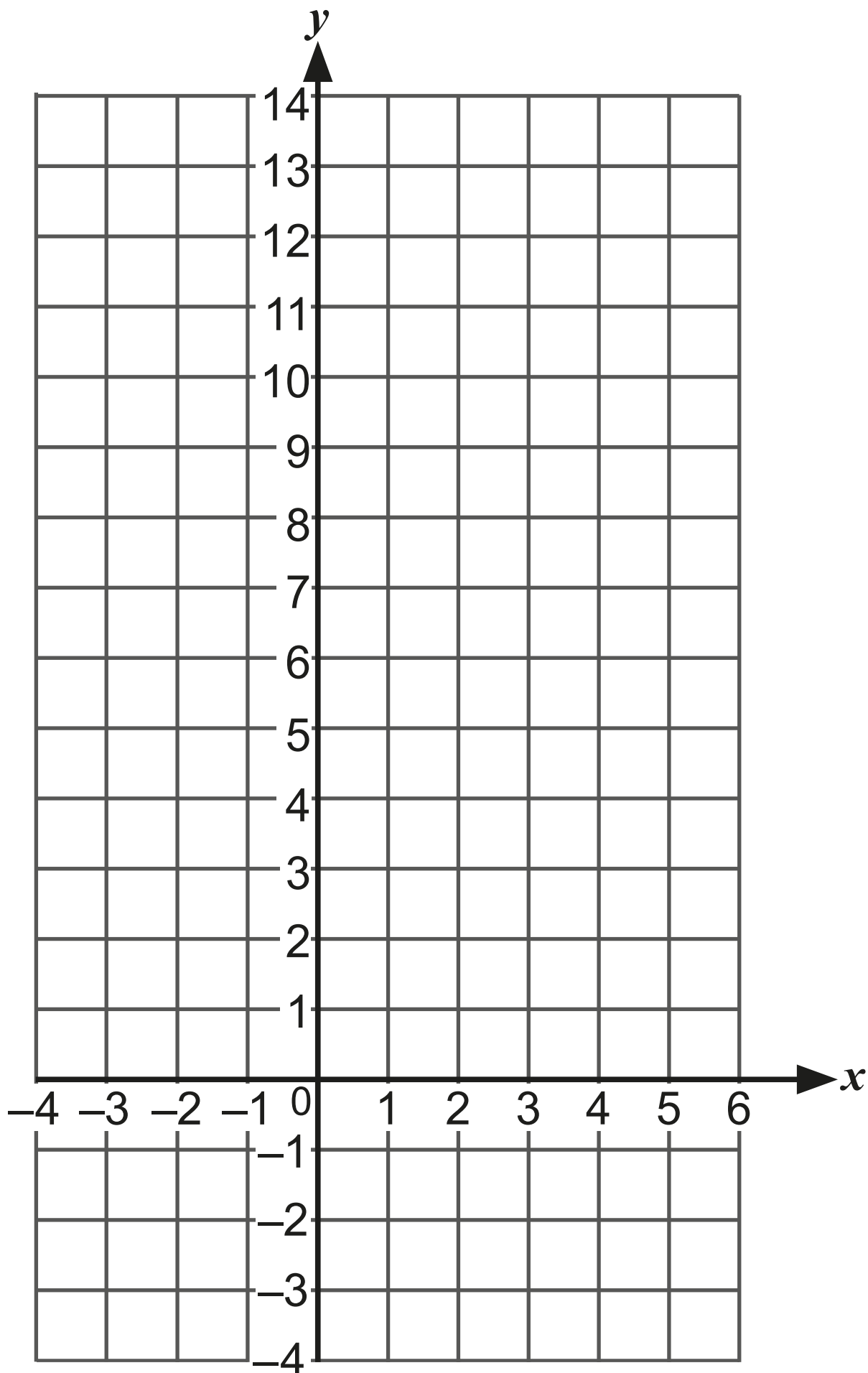
He spent 6 hours revising and scored 58

Plot Jake's point on the scatter graph.  
[1 mark]

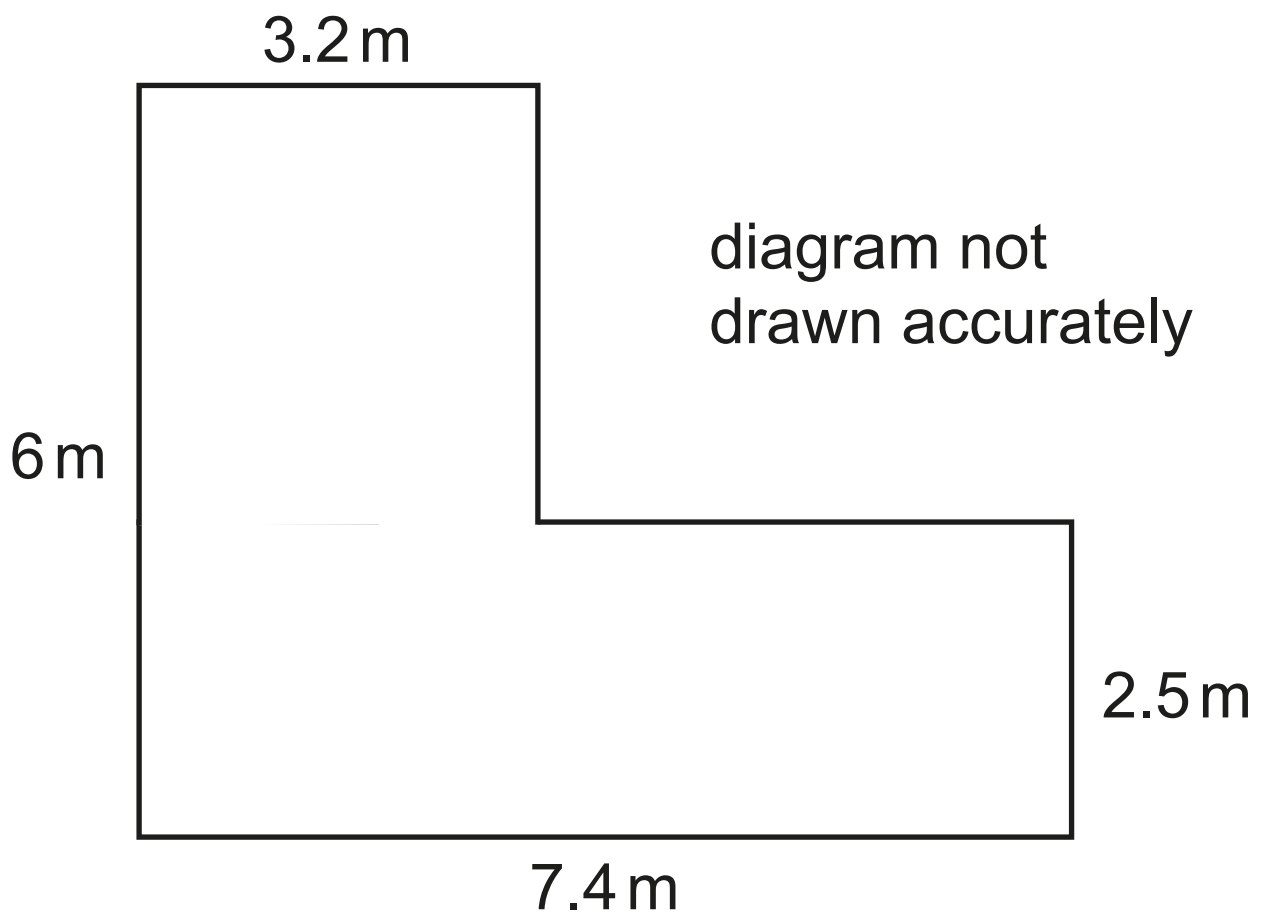
**(b)** Describe the relationship between the revision time in hours and the score in the Mathematics exam. [1 mark]

Answer \_\_\_\_\_  
\_\_\_\_\_

**29** Draw the graph of  $y = 3x + 4$  on the grid opposite. [3 marks]



**30** The diagram shows a sketch of a garden.



Rolls of grass are to be bought to cover the garden.

Each roll covers 1 square metre.

Each roll costs £4.50

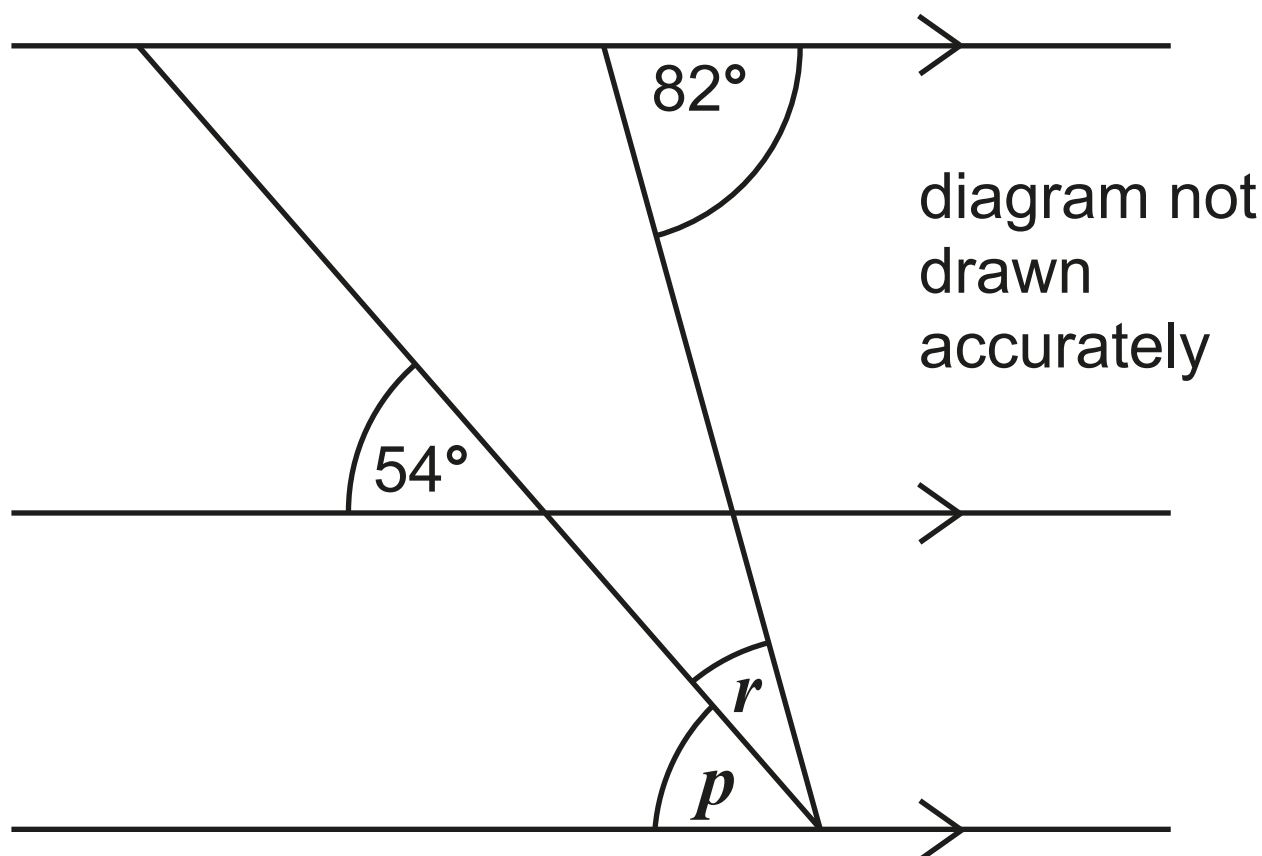
Only **complete** rolls can be bought.

How much will it cost to buy enough rolls to cover the garden? [4 marks]

**Show your working out clearly.**

Answer £ \_\_\_\_\_

31



Find

(a) angle  $p$  [1 mark]

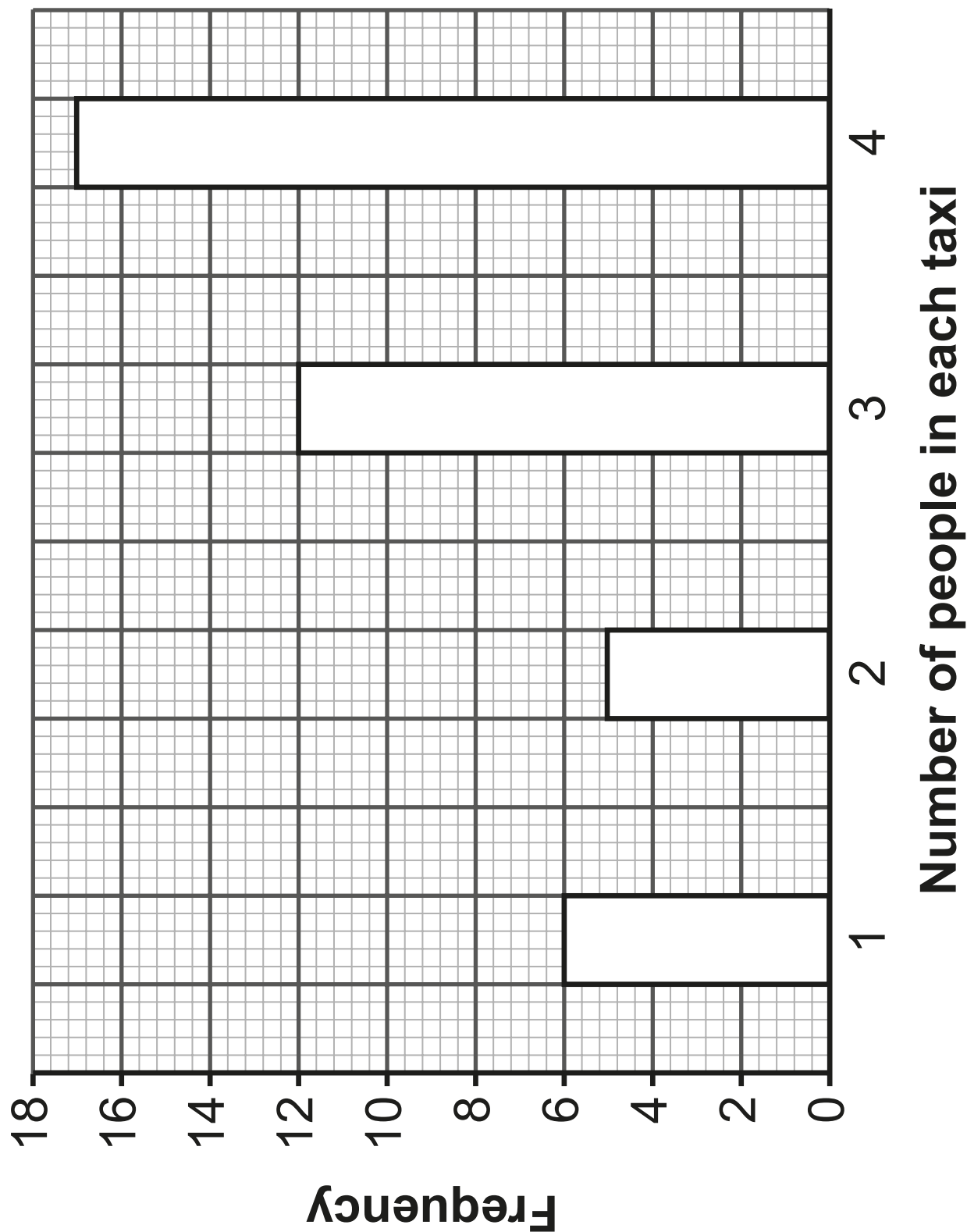
Answer \_\_\_\_\_ °



**(b)** angle  $r$  [2 marks]

Answer \_\_\_\_\_°

**32** The bar chart shows the number of people in each taxi booked from a taxi company one Saturday night.



Calculate the mean number of people in each taxi. [4 marks]

**Show your working out clearly.**

Answer \_\_\_\_\_

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**This is the end of the question paper**

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