



General Certificate of Secondary Education

Centre Number

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Candidate Number

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# Mathematics

Unit M1  
(With calculator)  
Foundation Tier



[GMC11]  
Assessment

\*GMC11\*

**TIME**

1 hour 45 minutes.

**Assessment Level of Control:**

Tick the relevant box (✓)

Controlled Conditions	
Other	

**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 outside the boxed area on each page or on blank pages.**

Complete in black ink only. **Do not write with a gel pen.**

Answer **all twenty-seven** questions.

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

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

**INFORMATION FOR CANDIDATES**

Functional Mathematics is assessed in this unit.

The total mark for this paper is 100.

Figures in brackets printed down the right-hand side of pages 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 2.

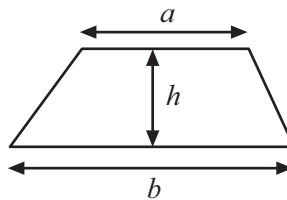
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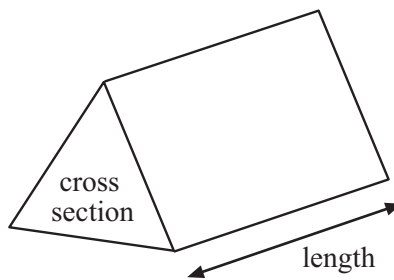
\*32GMC1101\*

# Formula Sheet

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



$$\text{Volume of prism} = \text{area of cross section} \times \text{length}$$



1 Class 12P raised £275 for charity.

Class 12T raised £312 for charity.

(a) How much money was raised in total by the two classes?

Answer £ \_\_\_\_\_ [1]

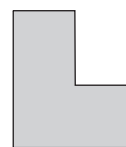
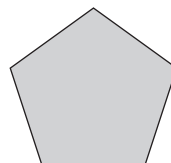
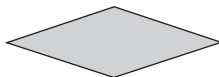
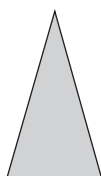
(b) How much more money was raised by Class 12T?

Answer £ \_\_\_\_\_ [1]



2 (a) Which shape below is a regular polygon?

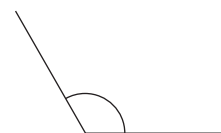
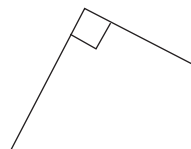
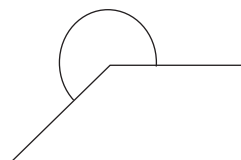
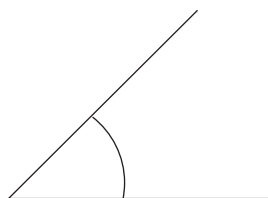
Circle your answer.



[1]

(b) Which angle below is obtuse?

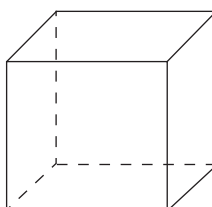
Circle your answer.



[1]

(c) How many vertices has a cube?

Circle your answer.



8

6

12

4

[1]



3 Barry downloads five films.

The films and their lengths are shown.

Sum Like It Hot 90 minutes	Math Ado About Nothing 125 minutes	The Times Tables Machine 85 minutes	Charlie's Angles 105 minutes	10 <sup>2</sup> and 1 Dalmations 140 minutes
----------------------------------	--	---	------------------------------------	--

(a) Which film is closest in length to two hours?

Answer \_\_\_\_\_ [1]

(b) Barry starts watching Sum Like It Hot at 8.30 pm.

What time will the film end?

Answer \_\_\_\_\_ pm [1]

(c) Which two films have a total length of 3 hours and 15 minutes?

Answer \_\_\_\_\_ and \_\_\_\_\_ [2]

[Turn over

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\*32GMC1105\*

4 The table shows information about ten dogs at an Animal Rescue Centre.

Breed	Size	Weight (kg)	Recommended amount of food per day (grams)	Average life expectancy (years)
Basenji	Medium	11	205	13
Basset Hound	Large	23	370	12.5
Boxer	Large	33	475	9
Chihuahua	Small	2.3	50	16
Doberman Pinscher	Large	40	550	11
Fox Terrier	Small	8	165	11.5
Great Dane	Large	72	935	8.5
Kerry Blue Terrier	Medium	17	290	13.5
Westie	Small	8	160	13
Whippet	Medium	15	265	13.5

(a) What breed has the longest average life expectancy?

Answer \_\_\_\_\_ [1]

(b) What breed is the heaviest of the medium size dogs?

Answer \_\_\_\_\_ [1]



(c) Victoria is looking for a dog that

**weighs no more than 15 kg**

**has a life expectancy of at least 12 years and**

**eats less than 200 g of food per day**

Which two breeds should she consider?

Answer \_\_\_\_\_ and \_\_\_\_\_ [2]



5 The heights of five brothers are shown below.

Alf	Bob	Chris	Dave	Eddie
1.26 m	1.07 m	1.41 m	1.30 m	1.18 m

They line up for a family photograph in order of height.

(a) Who is the tallest?

Answer \_\_\_\_\_ [1]

(b) Who is in the middle of the photograph?

Answer \_\_\_\_\_ [1]

The boys timed themselves running to the bottom of the garden.

Their times are shown below.

Alf	Bob	Chris	Dave	Eddie
8.5 seconds	9 seconds	7.6 seconds	7.45 seconds	8.07 seconds

(c) Who has the fastest time?

Answer \_\_\_\_\_ [1]

(d) What is the difference between the times for Bob and Chris?

Answer \_\_\_\_\_ seconds [1]





6

**Jenny's Driving School**

1st Lesson FREE

Lessons 2–5: £20 each

From Lesson 6: £25 each lesson

- (a) Melanie books five lessons.

How much does this cost?

Answer £ \_\_\_\_\_ [1]

- (b) Naomi books lessons costing a total of £255

How many lessons does she book?

Answer \_\_\_\_\_ [3]

[Turn over

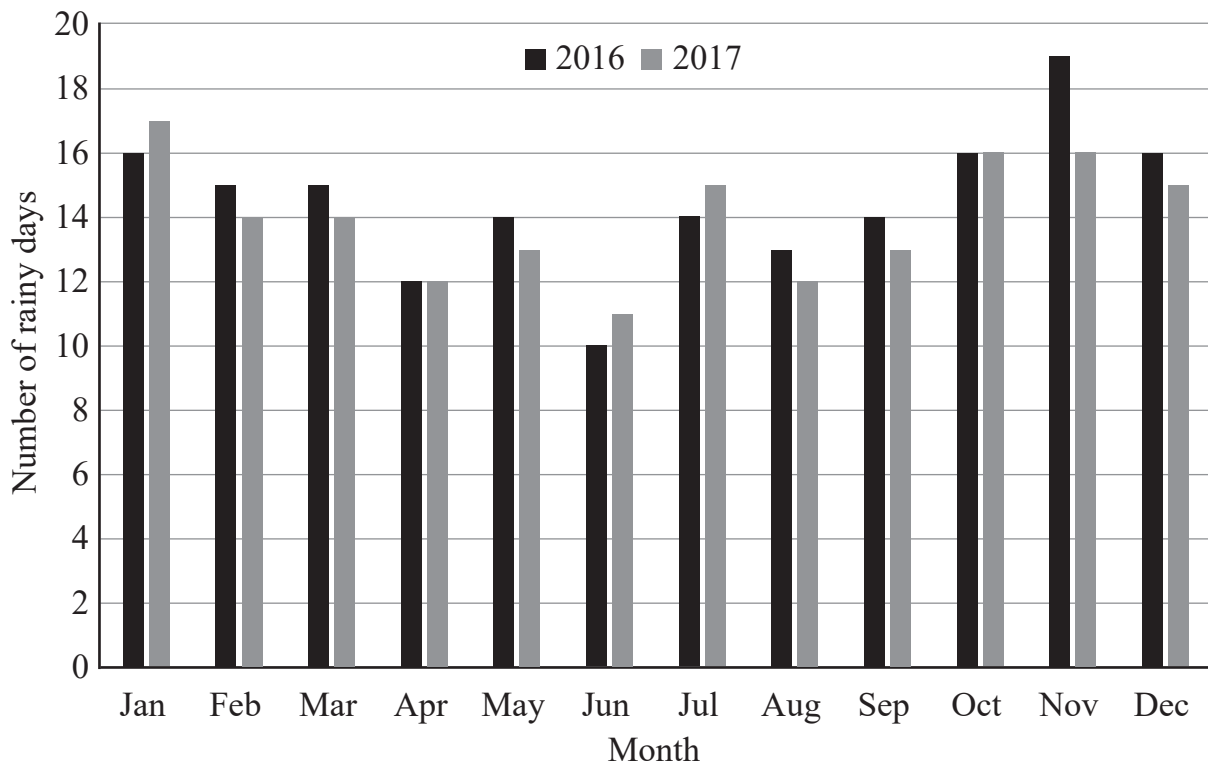
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\*32GMC1109\*

- 7 The chart shows the number of rainy days each month over two years at Giant's Causeway.

**Number of rainy days each month at Giant's Causeway**



- (a) How many rainy days were there in November 2016?

Answer \_\_\_\_\_ [1]

- (b) Based on the information shown which is the driest month?

Answer \_\_\_\_\_ [1]

There is only one month that had rain on exactly half of its days.

- (c) Which month and year is this?

Answer Month \_\_\_\_\_

Year \_\_\_\_\_ [1]



8 (a) The colours of 10 cars were recorded as:

red white black green white white blue grey blue yellow

(i) What is the modal colour of the cars?

Answer \_\_\_\_\_ [1]

(ii) Explain why it is not possible to find the **median** colour of the cars.

Answer \_\_\_\_\_  
\_\_\_\_\_ [1]

(b) Five basketball players have the shoe sizes shown below.

14      10       $10\frac{1}{2}$       13       $12\frac{1}{2}$

(i) What is the range of the shoe sizes?

Answer \_\_\_\_\_ [1]

(ii) Calculate the mean shoe size.

Answer \_\_\_\_\_ [3]

[Turn over



9 A supporters' club can buy match tickets for £7.50 each.

They have £200 to spend.

(a) What is the greatest number of tickets they can buy?

Answer \_\_\_\_\_ [3]

(b) How much money will be left?

Answer £ \_\_\_\_\_ [2]

(c) At the match there is food and drink for sale.

Burger	£3.50
Hot Dog	£2.20
Pastie	£1.60
Chips	£2.40
Soft Drink	£1.30

Graeme has a £10 note.

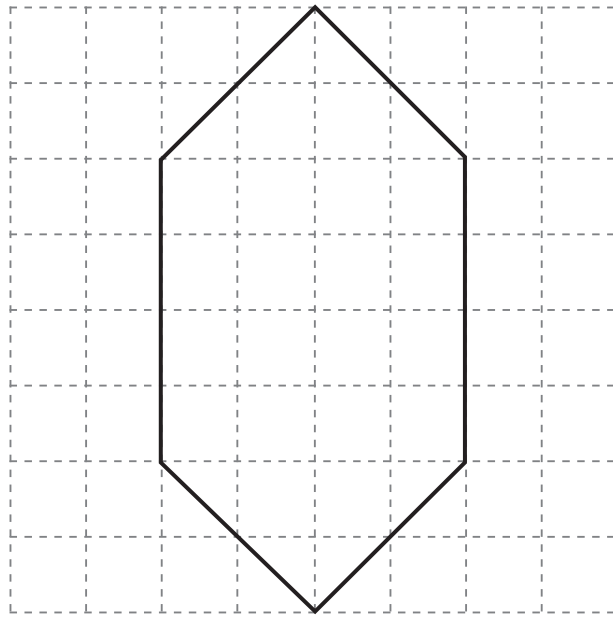
He buys three items and gets £4.70 change.

What three items did he buy?

Answer \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ [2]



10 A shape is drawn on a centimetre squared grid as shown below.



(a) Work out the area of the shape.

Answer \_\_\_\_\_  $\text{cm}^2$  [1]

(b) Draw all the lines of symmetry on the shape.

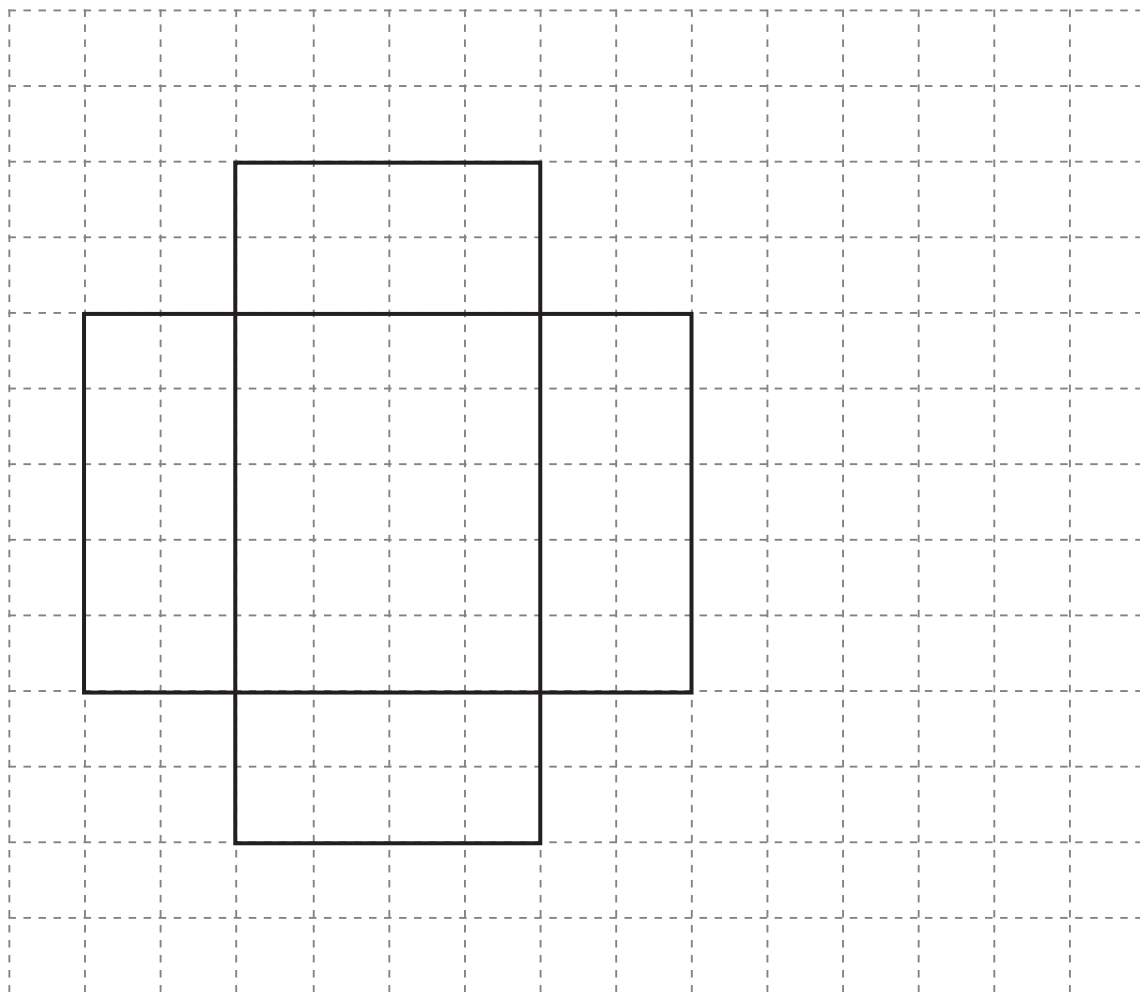
[1]

[Turn over



11 Part of the net of a cuboid is drawn on centimetre squared paper.

One face is missing.



(a) Complete the net by drawing the missing face.

[1]

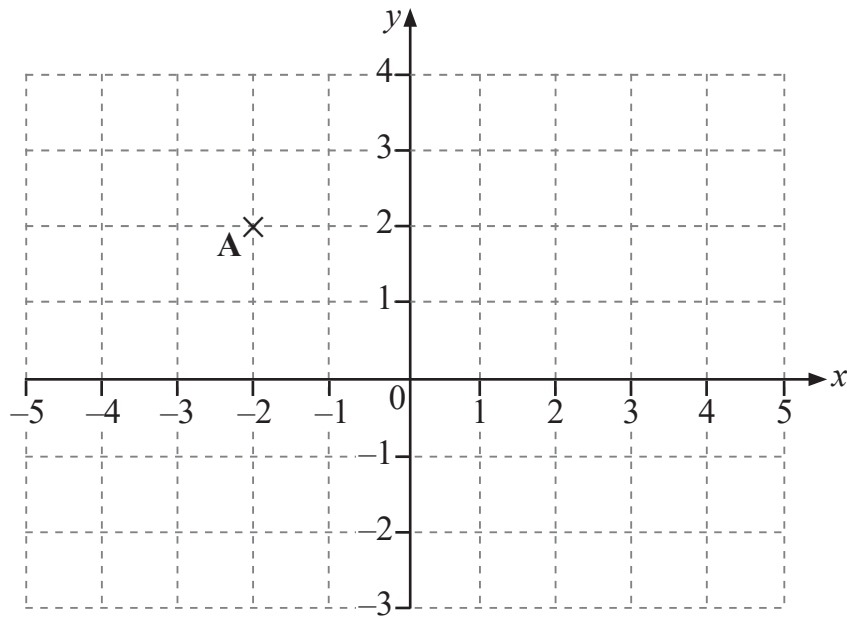
(b) The net is folded up to make a cuboid.

Work out the volume of the cuboid.

Answer \_\_\_\_\_  $\text{cm}^3$  [3]



12



Look at the coordinate grid above.

The point A  $(-2, 2)$  has been plotted for you.

(a) Plot and label the points B  $(3, 2)$  and C  $(5, -2)$  on the grid. [2]

(b) Plot and label a point D on the grid so that ABCD is a trapezium. [1]

[Turn over



13 James and Zach are trying to find the value of  $3 + 4 \times 5$

James says it is 35

Zach thinks it is 23

Who is correct?

Give a reason for your answer.

Answer \_\_\_\_\_ because \_\_\_\_\_ [2]





14 Solve the equations

(a)  $5w = 80$

Answer  $w =$  \_\_\_\_\_ [1]

(b)  $\frac{t}{8} = 4$

Answer  $t =$  \_\_\_\_\_ [1]

(c)  $30 = c + 18$

Answer  $c =$  \_\_\_\_\_ [1]

(d)  $9n - 2 = 52$

Answer  $n =$  \_\_\_\_\_ [2]

[Turn over



- 15 A sports team recorded information about whether players were able to play on Saturday only, Sunday only, or both.

(a) Complete the two-way table below.

	Saturday only	Sunday only	Both Saturday and Sunday	
Defenders	5	2		7
Midfielders	4		3	8
Attackers		3	1	
		6	4	21

[2]

(b) The team decides to play on Saturday.

How many midfielders are able to play?

Answer \_\_\_\_\_ [1]

- 16 Simplify the expression

$$6e - 5w + 2e - 4w$$

Answer \_\_\_\_\_ [2]



17 Jake earns £1400 each month.

Every month he pays 4% of his earnings into a savings scheme.

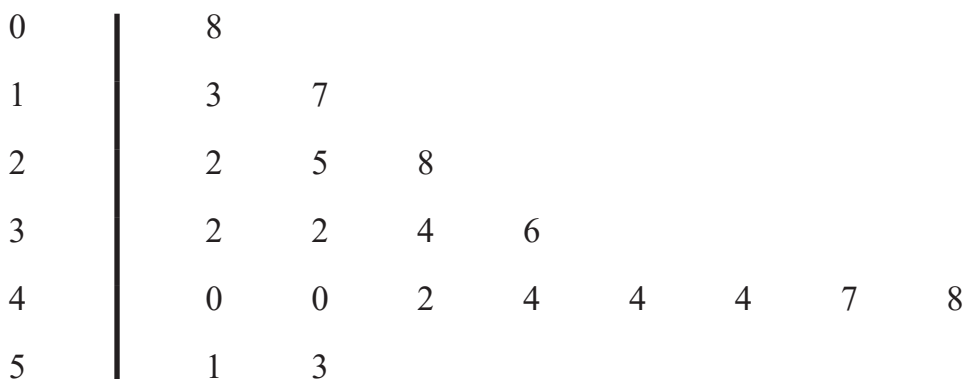
How much money will he have paid into this scheme after three months?

Answer £ \_\_\_\_\_ [3]



18 Martin asks 20 workers how many hours they normally work in a week.

The results are shown in the stem and leaf diagram below.



Key 4 | 2 means 42 hours

(a) For the data above, work out

(i) the range,

Answer \_\_\_\_\_ hours [1]

(ii) the median.

Answer \_\_\_\_\_ hours [1]

(b) Another worker normally works 39 hours in a week.

This value is added to the stem and leaf diagram.

Circle the correct word or words to make each of the following statements correct.

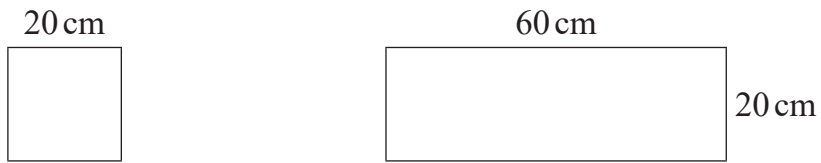
(i) The mode will increase / decrease / stay the same [1]

(ii) The range will increase / decrease / stay the same [1]

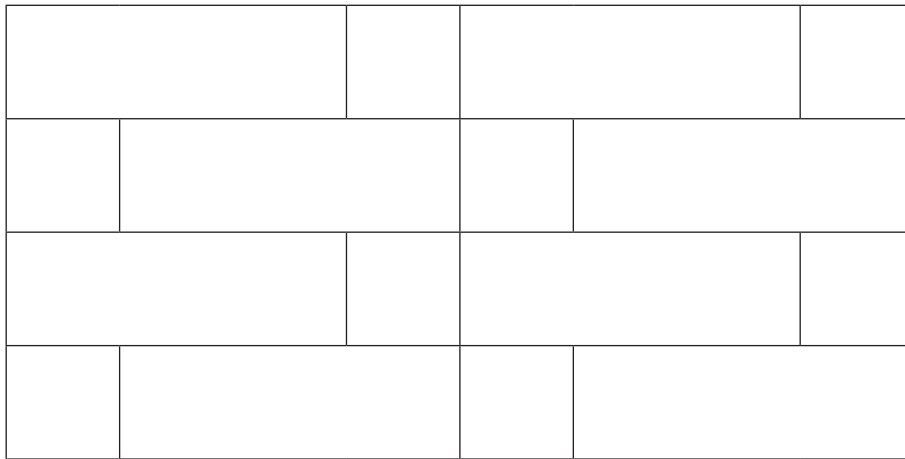
(iii) The median will increase / decrease / stay the same [1]



19 A garden table is tiled using square tiles and rectangular tiles, as shown below.



The tiled table looks like this.



Work out the **perimeter** of the table.

Give your answer in **metres**.

Answer \_\_\_\_\_ m [3]

[Turn over



20 Louise normally works 38 hours per week and is paid £9.80 per hour.

If she works any extra hours, she is paid at the overtime rate of £14.50 for each extra hour.

Last week her total earnings were £473.90

How many **extra** hours did she work last week?

Answer \_\_\_\_\_ [3]



21 Wayne wants to travel from Glasgow to Carlisle by train.

Glasgow	Depart	17:42
Carlisle	Arrive	20:11

How long will this journey take?

Answer \_\_\_\_\_ [3]

22 Suzie notices this sign in her local takeaway.

5% charge on card payments  
for orders under £15

She orders food costing £12.80 and decides to pay by card.

How much will she have to pay in total?

Answer £ \_\_\_\_\_ [3]

[Turn over

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\*32GMC1123\*

23 A group of 10 people sat their driving theory test.

Their driving instructor recorded how many practice tests they did and their score in the real test.

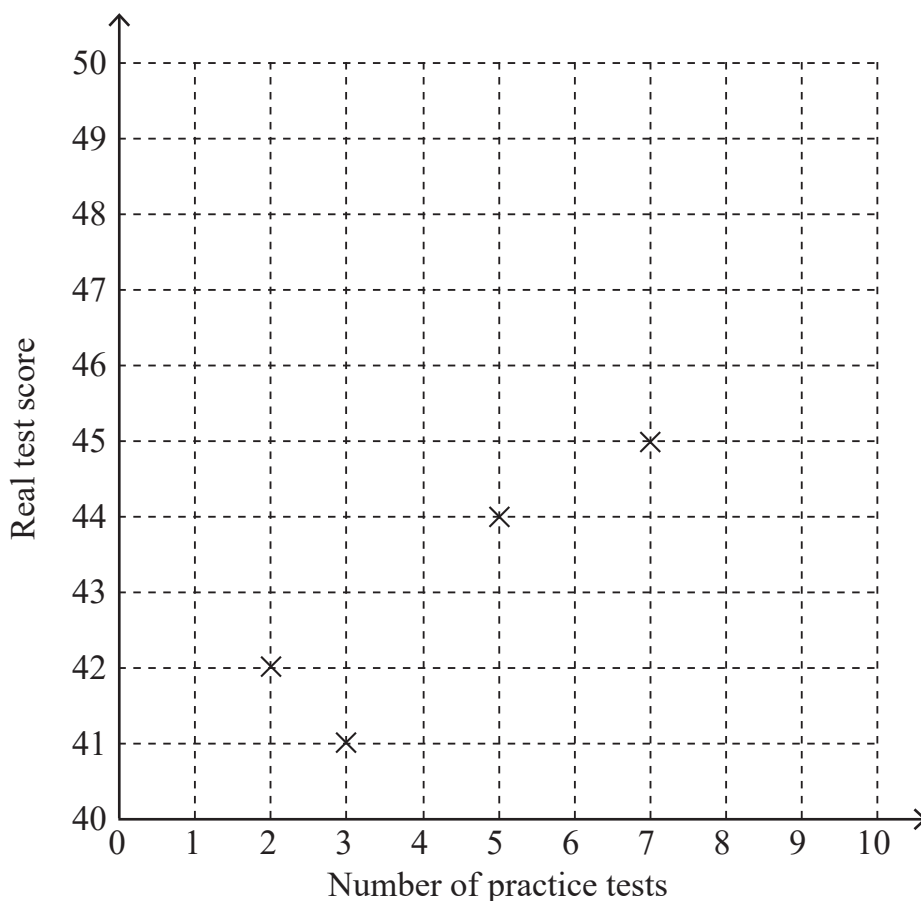
The information is recorded in the table below.

Person	A	B	C	D	E	F	G	H	I	J
Number of practice tests	2	5	3	7	4	1	9	6	5	5
Real test score	42	44	41	45	43	41	48	45	46	42

(a) Show this information on the scatter graph below.

The first four points have been plotted for you.

[2]





(b) The pass mark for the test is 44

How many of the 10 people passed the test?

Answer \_\_\_\_\_ [1]

(c) Complete the statement:

“In general, the \_\_\_\_\_ practice tests completed,

the \_\_\_\_\_ the test score.” [1]

[Turn over

12368.05 R



\*32GMC1125\*

24 A cinema ticket for an adult costs £ $t$

A cinema ticket for a child costs £3

James bought four adult tickets and seven child tickets.

The total cost was £49

(a) Write down an **expression** for the cost of the four adult tickets.

Answer \_\_\_\_\_ [1]

(b) (i) Form an equation that can be solved to find the cost of an adult ticket.

Answer \_\_\_\_\_ [1]

(ii) Solve your equation to find the cost of an adult ticket.

Answer  $t =$  \_\_\_\_\_ [2]



25 Bob is going to pave a patio. He needs 480 paving slabs.

He looks in three different stores.

**Garden Store**

**32 slabs in a box**

**Box price = £27**

**Perfect Patio  
Store**

**80 slabs in a box**

**Box price = £70**

10% discount on  
5 or more boxes

**Quinn's Paving  
Store**

**16 slabs in a box**

**Box price = £17**

Buy 5 boxes,  
get one extra box free

Which store will be the cheapest for him to buy the slabs in?

**Show all your working.**

Answer \_\_\_\_\_ [6]

[Turn over

12368.05 R



\*32GMC1127\*

- 26 The price of a phone was £620  
The price is reduced by 30%.  
Calculate the new price.

Answer £\_\_\_\_\_ [3]

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\*32GMC1128\*

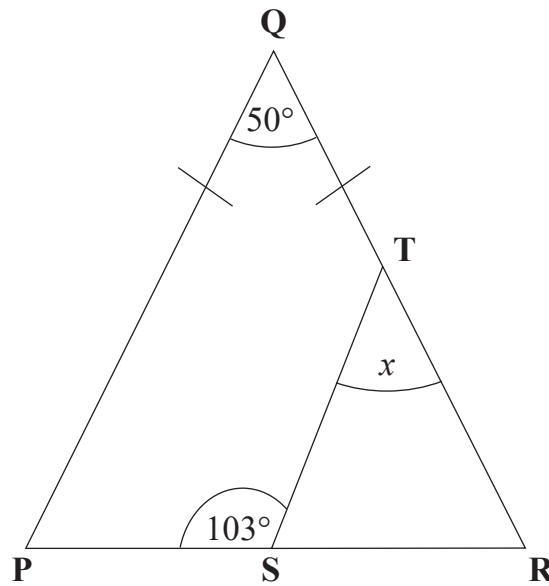


diagram  
not drawn  
accurately

Triangle PQR is isosceles with  $PQ = QR$ .

(a) Calculate the size of angle  $x$

Answer \_\_\_\_\_° [3]

(b) Hence decide if the lines PQ and ST are parallel.

\_\_\_\_\_ because \_\_\_\_\_  
 \_\_\_\_\_ [2]

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For Examiner's use only	
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<b>Total Marks</b>	
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Examiner Number

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