

Write your name here

Surname

Other names

Centre Number

Candidate Number

**Edexcel GCSE**

# Applications of Mathematics

## Unit 2: Applications 2

**For Approved Pilot Centres ONLY**

**Foundation Tier**

Thursday 8 November 2012 – Afternoon

**Time: 1 hour 45 minutes**

Paper Reference

**5AM2F/01**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. 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.*
- **Calculators may be used.**
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142 unless the question instructs otherwise.



### Information

- The total mark for this paper is 100
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed.

### Advice

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

Turn over ►

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6/6/7/5/



**PEARSON**

GCSE Mathematics 2AM01

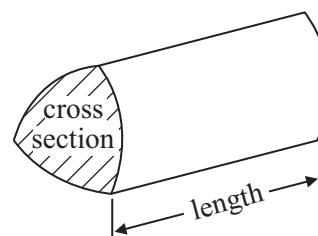
Formulae: Foundation Tier

**You must not write on this formulae page.  
Anything you write on this formulae page will gain NO credit.**

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



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



**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all stages in your working.**

**1** There are 2380 books in a library.

On Monday

74 books are borrowed

51 books are returned.

On Tuesday

42 books are borrowed

30 books are returned.

How many books are there in the library now?

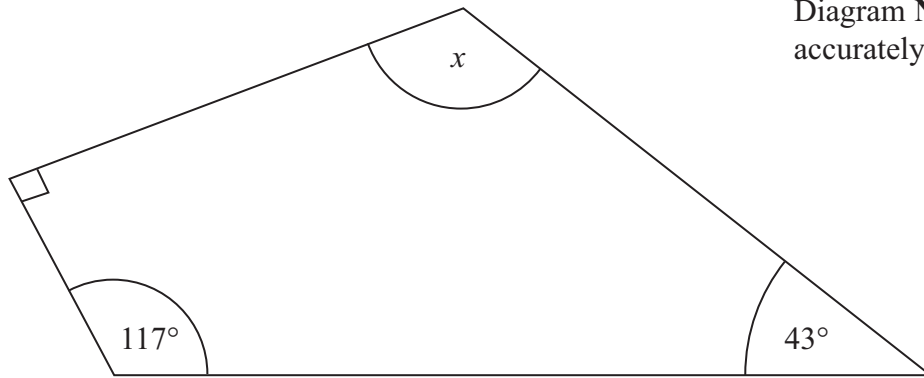
.....  
**(Total for Question 1 is 3 marks)**

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2 The diagram shows a field in the shape of a quadrilateral.

Diagram **NOT**  
accurately drawn



(i) Work out the size of the angle marked  $x$ .

(ii) Give a reason for your answer.

(Total for Question 2 is 3 marks)



3 Hamish uses Ace taxis to take him from his hotel to the airport.

The taxi left the hotel at 19 45

It got to the airport at 21 18

(a) How long did the journey from Hamish's hotel to the airport take?

.....  
(2)

At the airport Hamish buys

2 travel adaptors costing £4.50 each  
1 magazine costing £2.90  
and 1 pair of sunglasses costing £18.00

Hamish pays with a £50 note.

(b) Work out how much change he should get.

£.....  
(3)

**(Total for Question 3 is 5 marks)**



4 A baby weighs 3.25 kg.

(a) Write down the value of the 2 in the number 3.25

.....  
(1)

Josh uses 1.75 kg of flour in a recipe.

(b) How many grams of flour does he use?

.....g  
(1)

A ball of string has a length 8952 cm.

(c) Write down the length of the string in metres.

.....m  
(1)

**(Total for Question 4 is 3 marks)**

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5 The diagram shows the distances, in km, between four towns A, B, C and D.

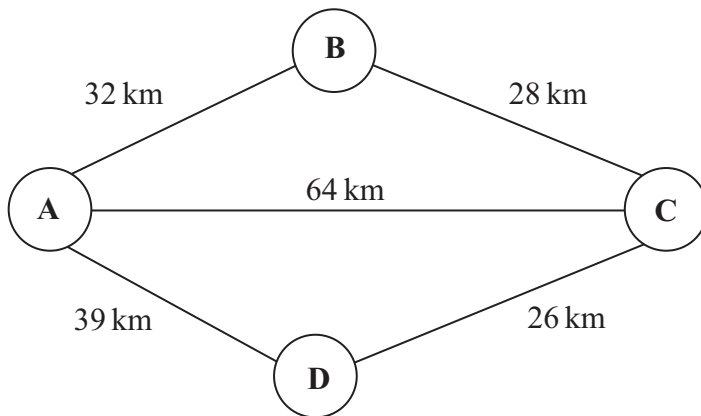


Diagram **NOT** accurately drawn

Sanjay needs to drive from town A to town C.  
He wants to use the shortest route.

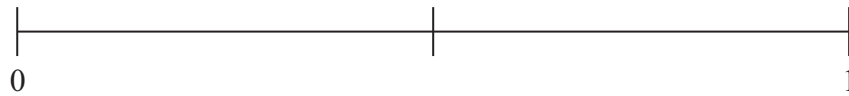
Work out the shortest route Sanjay can use.  
You must write down the route and the distance.

..... km

**(Total for Question 5 is 3 marks)**



- 6 (a) (i) On the probability scale below, mark with a cross (×) the probability that the sun will rise next Friday.



- (ii) On the probability scale below, mark with a cross (×) the probability that the next baby born will be a boy.



(2)

Raj has 8 tins of soup in his cupboard.

He has

- 4 tins of tomato soup
- 1 tin of chicken soup
- 3 tins of lentil soup

Raj takes at random a tin of soup from the cupboard.

- (b) Write down the probability that he takes a tin of chicken soup.

.....  
(1)

**(Total for Question 6 is 3 marks)**





7 There were 60 votes in an election.  
There were two candidates, Jared and Beth.

Jared had 18 more votes than Beth.

How many votes did Beth get?

.....  
**(Total for Question 7 is 2 marks)**

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8 The diagram shows a sign outside a hat shop.

The sign is made from 2 cuboids.

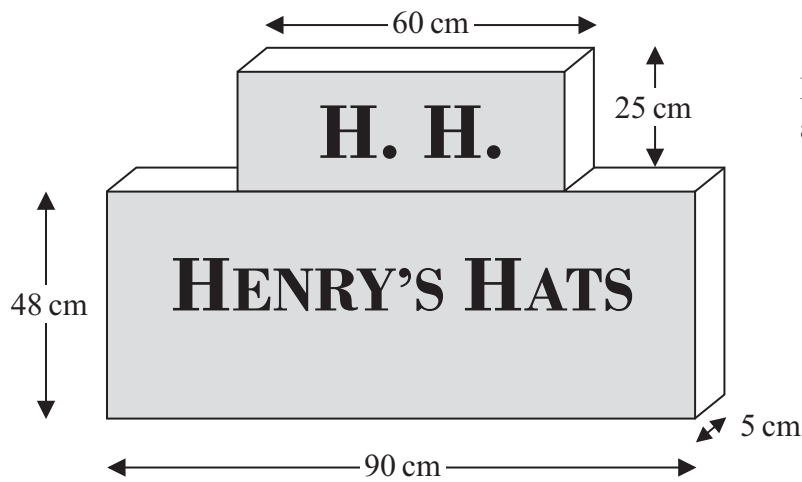


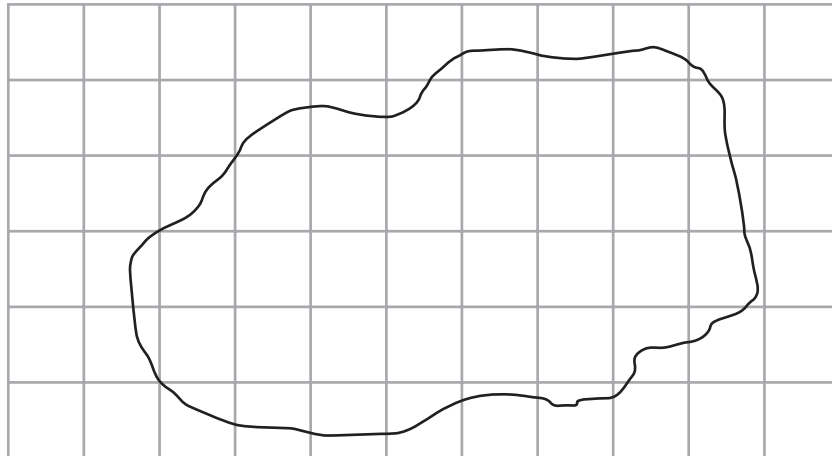
Diagram **NOT** accurately drawn

Work out the surface area of the **front** of the sign.

.....  
(Total for Question 8 is 4 marks)



- 9 The diagram shows a scale drawing of a field.  
Each square of the grid has an area of  $1 \text{ cm}^2$ .



The scale of the diagram is  $1 \text{ cm}^2$  represents  $100 \text{ m}^2$ .

Find an estimate for the area of the field.  
Give your answer in  $\text{m}^2$ .

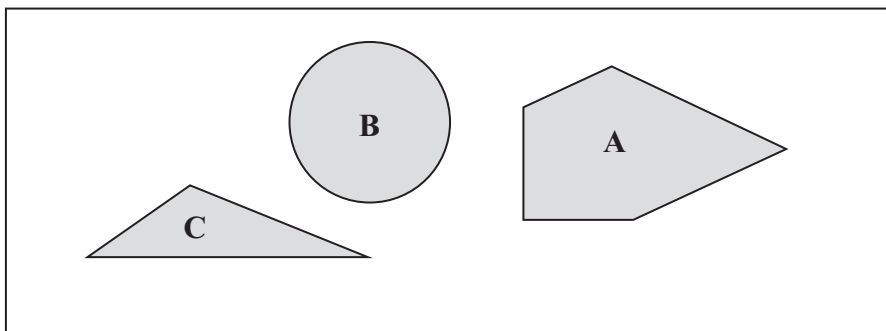
..... $\text{m}^2$

**(Total for Question 9 is 3 marks)**



10 Zina makes a children's puzzle with three shapes.

Here is a sketch of her puzzle.



Shape **A** has one pair of parallel sides.

(a) Mark with arrows (>>) the pair of parallel sides.

(1)

Shape **B** is a circle.

It has a radius of 4 cm.

(b) In the space below, draw accurately a circle of radius 4 cm.

Use the point *P* as the centre of your circle.

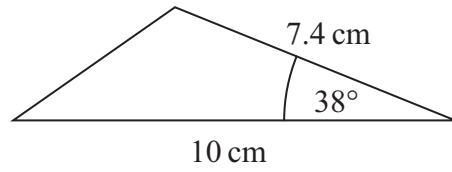
*P*  
x

(1)

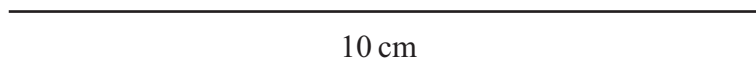


Shape C is a triangle.

Here is a sketch of the triangle.



- (c) Make an accurate drawing of this triangle.  
The 10 cm line has been drawn for you.



10 cm

(2)

(Total for Question 10 is 4 marks)



**\*11** Mrs Wilson works in a factory.

The table shows the amount of time she worked each day for a week.

<b>Mon</b>	<b>Tues</b>	<b>Wed</b>	<b>Thurs</b>	<b>Fri</b>
3 h 30 min	3 h 45 min	3 h 30 min	4 h 15 min	2 h 0 min

Mrs Wilson is paid for the total time she works in a week.

Mrs Wilson's pay is £8 per hour for the first 15 hours she works in the week.  
She is paid £10 per hour for any extra hours she works in the week.

Work out Mrs Wilson's pay for the week.  
You must show all your working.

**(Total for Question 11 is 4 marks)**

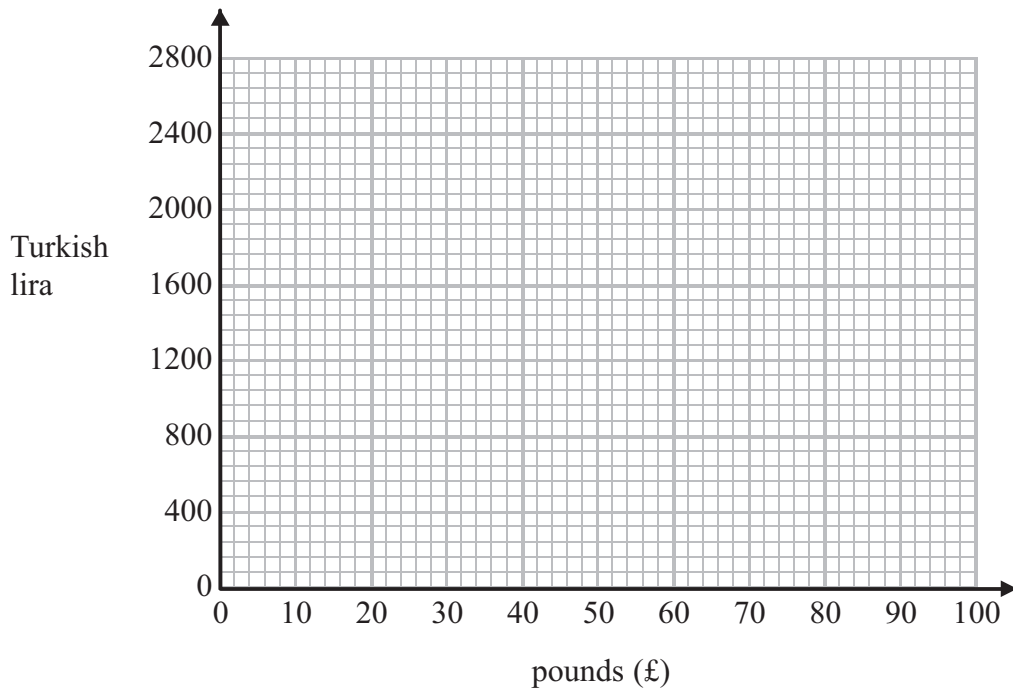


12 Mary goes on holiday to Turkey.

Mary needs to change between pounds (£) and Turkish lira.

$\pounds 1 = 24 \text{ Turkish lira}$
---------------------------------------

(a) On the grid, draw a conversion graph Mary can use to change between pounds and Turkish lira.



(2)

Mary changes 1800 Turkish lira into pounds.

(b) Use your graph to change 1800 Turkish lira into pounds.

£.....

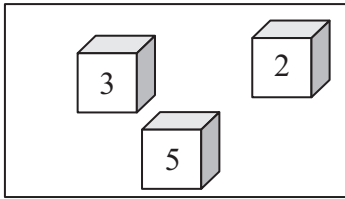
(2)

(Total for Question 12 is 4 marks)

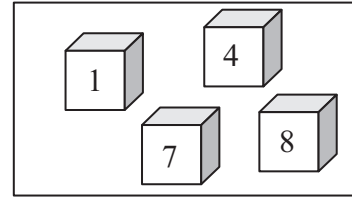


- 13 There are some centimetre cubes in two boxes.  
There is a number on each cube.

**Box A**



**Box B**



Esen takes at random one cube from Box A.  
She then takes at random one cube from Box B.

- (a) List all the pairs of numbers Esen can pick.

.....

.....

.....

(2)

Suzy plays a game with the centimetre cubes.  
She takes at random a cube from each box.  
She adds the two numbers on the cubes to get her score.

Suzy wins the game if she gets a score of 9

- (b) Work out the probability that she wins the game on her first attempt.

.....

(3)

**(Total for Question 13 is 5 marks)**





- 14 Gita buys watches from a company.  
She sells the watches for a higher price than she pays for them.

Gita uses this rule to work out the selling price of the watches.

$$\text{selling price} = \text{multiply cost price by } 1.5 \text{ and then add } \pounds 10$$

Gita buys a watch that has a cost price of  $\pounds 18$

- (a) Work out the selling price of this watch.

£.....  
(2)

A different watch has a selling price of  $\pounds 43$

- (b) Work out the cost price of this watch.

£.....  
(3)

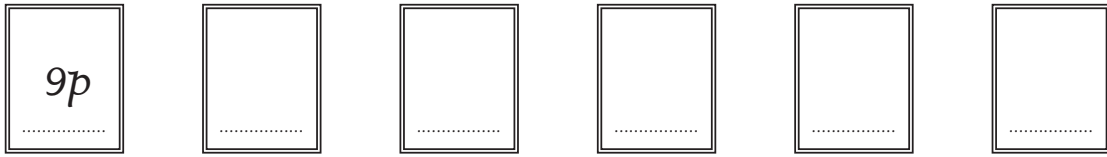
(Total for Question 14 is 5 marks)



15 Kirsty uses some 9p stamps and some 10p stamps to send a letter.

She uses exactly 6 stamps.

The total value of the stamps is 56p.



- (a) Write down the value of each stamp she uses.  
One has been done for you.

(1)

Phil wants to post a letter.

It costs £1.60 to post the letter.

Phil uses

one 32p stamp,  
three 41p stamps,  
and some 1p stamps.

- (b) How many 1p stamps does Phil use?

.....  
(2)



Amy puts some first class stamps and some second class stamps on a parcel.

The ratio of the number of first class stamps to the number of second class stamps is 2 : 3  
Amy uses a total of 15 stamps.

(c) How many second class stamps does Amy use?

.....  
(3)

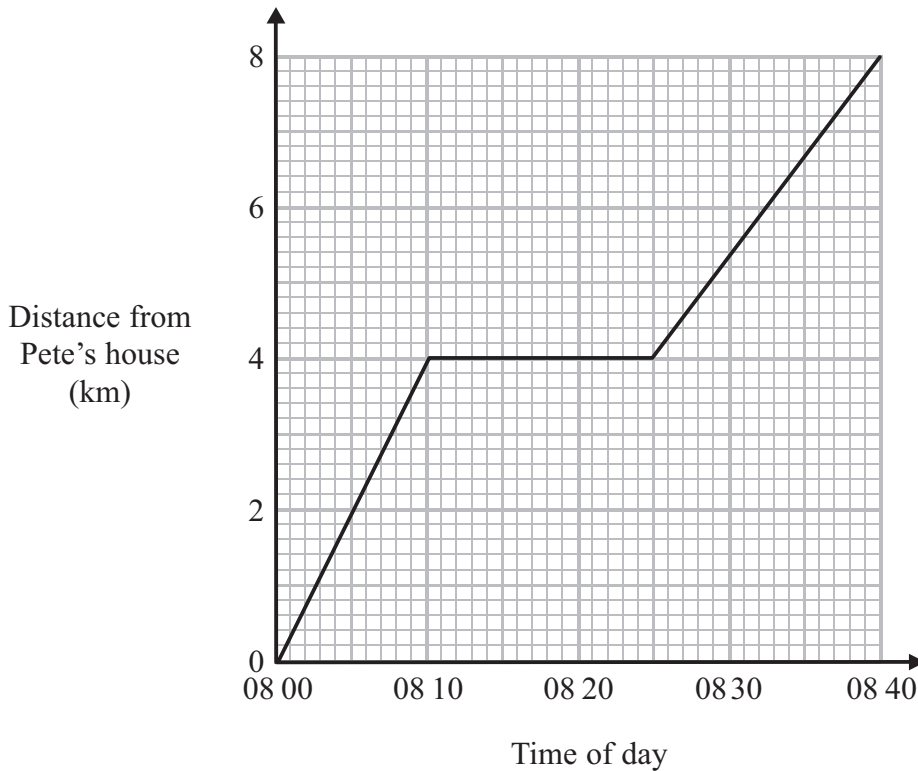
**(Total for Question 15 is 6 marks)**

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16 Pete cycled 8 km from his house to Fred's house.  
He stopped for a rest on the way.

Here is a distance-time graph for Pete's complete journey.



(a) How far was Pete from his house when he stopped for a rest?

..... km  
(1)

(b) How many minutes did Pete stop for a rest?

..... minutes  
(1)

Hajra cycled from Pete's house to Fred's house.  
She cycled there at a constant speed without stopping.

Hajra left Pete's house at 08 00  
She arrived at Fred's house at the same time as Pete.

(c) At what other time were Hajra and Pete the same distance from Fred's house?

.....  
(2)

(Total for Question 16 is 4 marks)



\*17 A shop sells tins of beans in three different sizes.

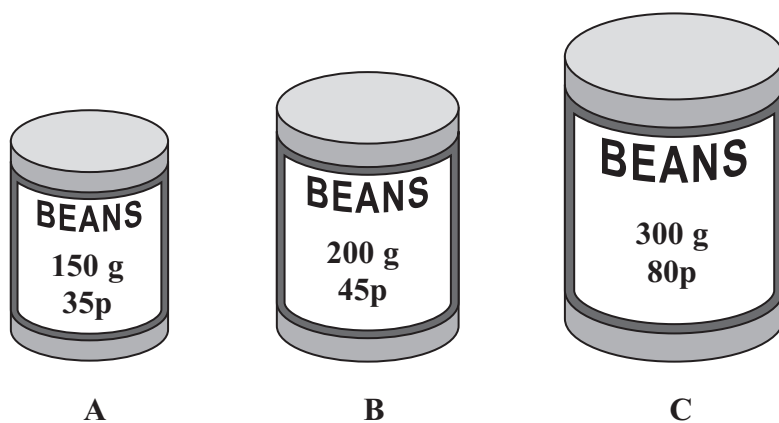


Diagram **NOT**  
accurately drawn

Kathy wants to buy exactly 750 g of beans.  
She wants to buy the beans at the cheapest possible cost.

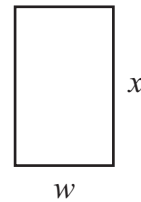
Work out the cheapest cost.  
You must show all your working.

(Total for Question 17 is 4 marks)



18 A parking space is in the shape of a rectangle.

The length of the parking space is  $x$  metres.  
The width of the parking space is  $w$  metres.

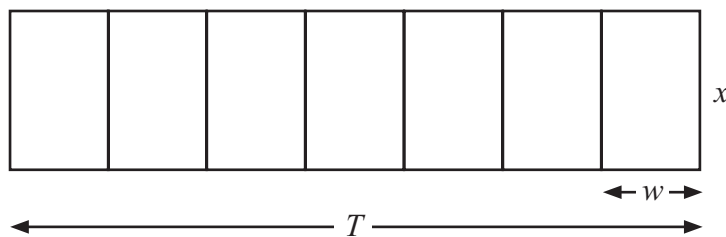


The width of the parking space is 1 metre less than the length of the parking space.

(a) Write down a formula for  $w$  in terms of  $x$ .

.....  
(2)

The diagram shows 7 of these parking spaces in a street.



The total width of these 7 spaces is  $T$  metres.

(b) Write down a formula for  $T$  in terms of  $x$ .

.....  
(1)

**(Total for Question 18 is 3 marks)**



**19** There are 12 girls and 18 boys in a class.

One of the students in the class is picked at random to give out some rulers.

Work out the probability that this student will be a girl.

.....  
**(Total for Question 19 is 2 marks)**

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20 When you buy something from Quickmart you get points.

<p><b>Smart Phone</b></p> <p><b>£419</b></p> <p>get 838 points</p>
--

<p><b>DVDs</b></p> <p><b>£8.99 each</b></p> <p>get 16 points for each DVD you buy</p>
---

<p><b>Lawnmower</b></p> <p><b>Basic £57</b> <b>Electric £81</b></p> <p>get 12 points for every £3 you spend</p>
---

Chantal buys a Smart Phone, 4 DVDs and a basic lawnmower from Quickmart.

(a) Work out how many points she gets.

.....points  
(3)





You can get money off the cost of your shopping at Quickmart.

**Get £2.40 off the cost of your shopping for every 500 points**

Louis has 4500 points.

He wants to get a DVD player costing £22

He wants to use his points to get the DVD player.

\*(b) Does Louis have enough points to get the DVD player?

(4)

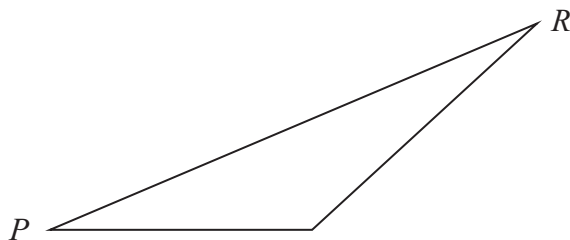
**(Total for Question 20 is 7 marks)**

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P 4 0 6 5 6 A 0 2 5 3 2

21 Here is a scale drawing of a field.



Scale: 1 cm represents 3 m.

Harry is going to plant some bushes on the side  $PR$ .  
He is going to plant the first bush at  $P$ .

The bushes will be 2 m apart.  
The cost of each bush is £11.99

Work out the total cost of the bushes on the side  $PR$ .

£.....

**(Total for Question 21 is 5 marks)**



**22** There are only red pens and blue pens in a box.

There are 12 red pens in the box.

The probability of taking at random a blue pen from the box is  $\frac{2}{3}$

Work out the total number of pens in the box.

.....  
**(Total for Question 22 is 3 marks)**

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23 Here is a diagram of a house.

The house is in the shape of a prism.

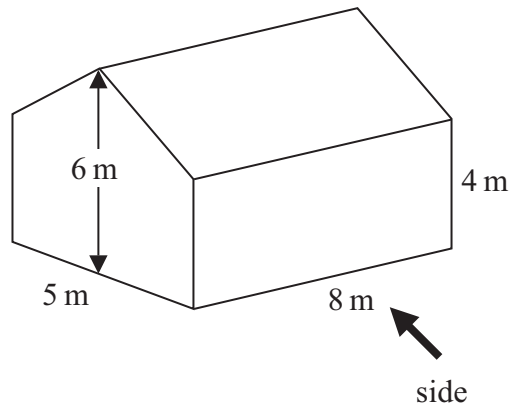
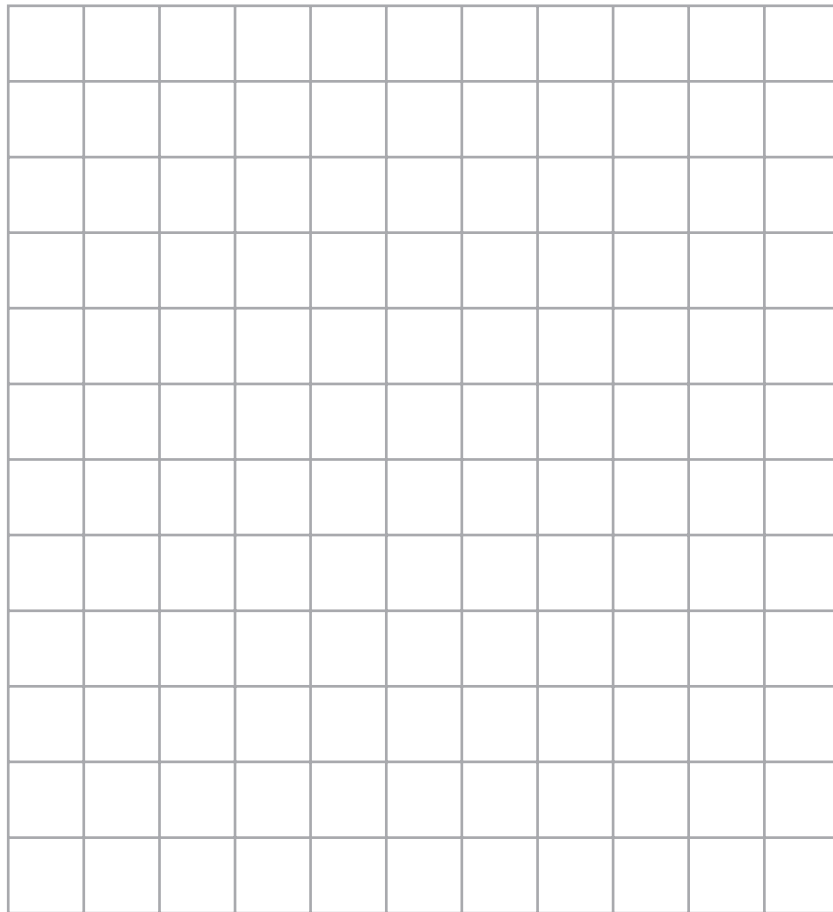


Diagram **NOT** accurately drawn

(a) On the grid, draw accurately the side elevation of the house from the direction marked with the arrow.

Use the scale 1 cm represents 1 m.

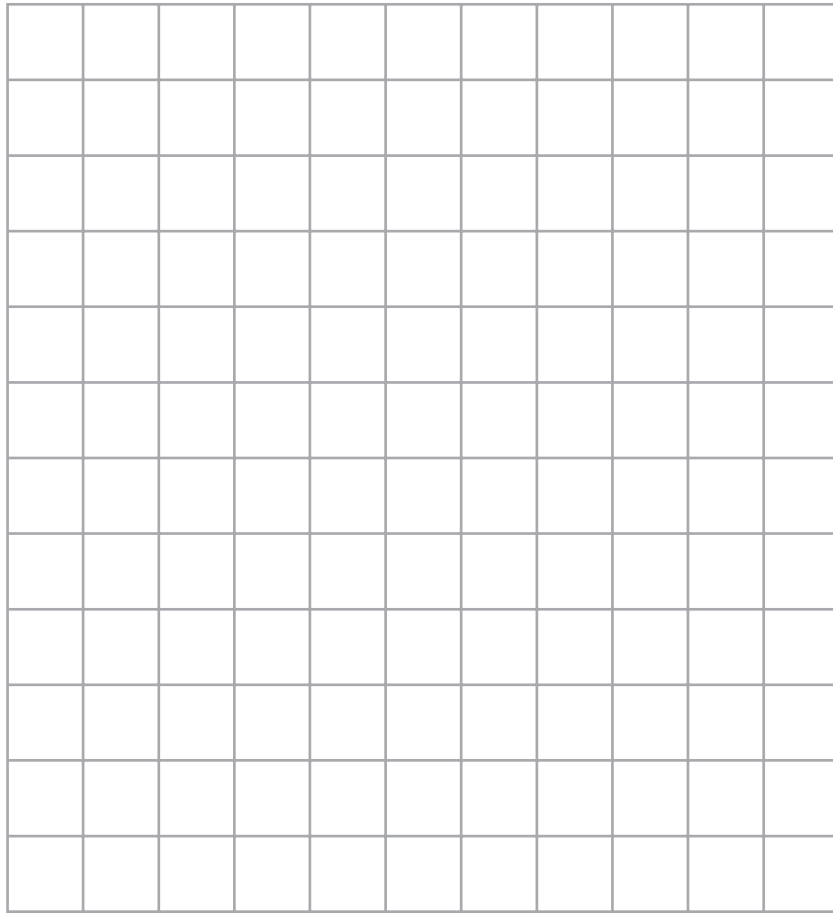


(2)



(b) On the grid below, draw accurately the plan of the house.

Use the scale 1 cm represents 1 m.



(2)

(Total for Question 23 is 4 marks)



\*24 The diagram shows the side view of a kitchen step ladder.

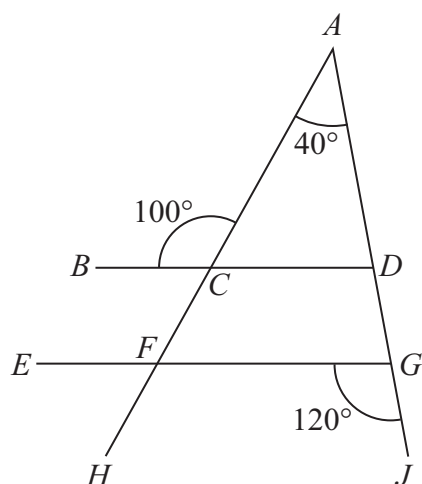


Diagram **NOT**  
accurately drawn

Brian says the straight lines  $BCD$  and  $EFG$  are parallel.

Is Brian correct?

You must show all your working.

Give reasons for your answer.

(Total for Question 24 is 3 marks)



25 Stefan is  $x$  years old.

Martin is 5 years younger than Stefan.

James is twice as old as Stefan.

The sum of their ages, in years, is less than 30

Work out the oldest age Stefan can be.

Give your answer as a whole number of years.

.....years

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**(Total for Question 25 is 4 marks)**



26 A compost bin is in the shape of a prism.

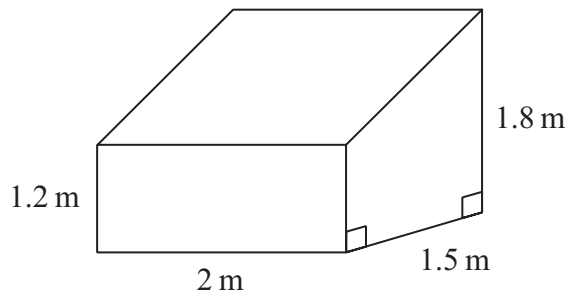


Diagram **NOT**  
accurately drawn

Work out the volume of the compost bin.

.....m<sup>3</sup>

(Total for Question 26 is 4 marks)

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**TOTAL FOR PAPER IS 100 MARKS**

