

Write your name here

Surname

Other names

Pearson
Edexcel GCSE

Centre Number

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Candidate Number

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Applications of Mathematics

Unit 1: Applications 1

For Approved Pilot Centres ONLY

Foundation Tier

Wednesday 6 November 2013 – Morning

Time: 1 hour 45 minutes

Paper Reference

5AM1F/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 π button, take the value of π 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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6/5/15/15/2/



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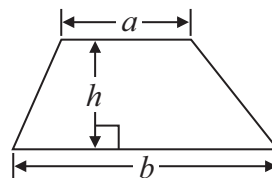
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GCSE Mathematics 2AM01

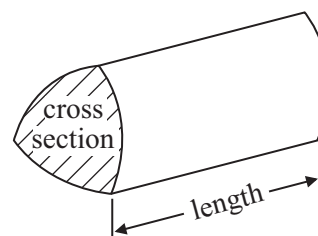
Formulae: Foundation Tier

**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 (a) Write down a sensible **metric** unit for measuring

(i) the weight of a bag of potatoes,

.....

(ii) the distance from London to New York,

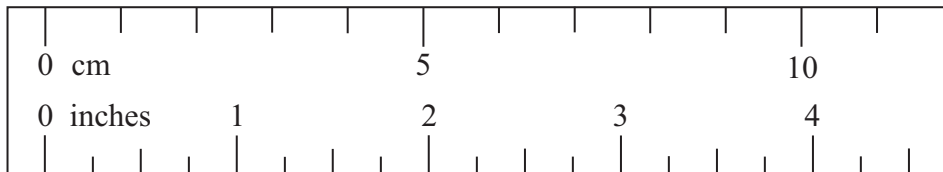
.....

(iii) the volume of water in a fish tank.

.....

(3)

Here is part of a ruler.



(b) Use the ruler to find an estimate for

(i) 4 inches in cm,

..... cm

(ii) 7 cm in inches.

..... inches

(2)

(Total for Question 1 is 5 marks)



2 Here is a sketch of the floor of a room.

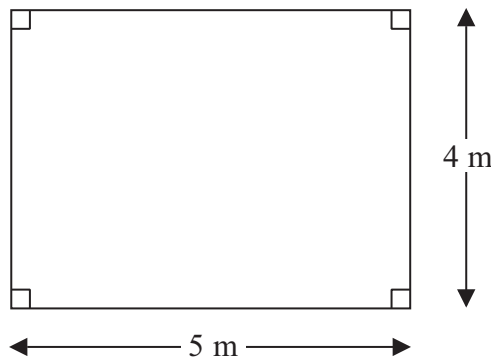


Diagram **NOT** accurately drawn

(a) Work out the perimeter of the floor.

..... m
(1)

(b) Work out the area of the floor.

..... m²
(2)

Jemma wants to cover the floor with carpet tiles.
She needs 80 carpet tiles to cover the floor.

Carpet tiles are sold in boxes.
There are 12 carpet tiles in each box.

(c) How many boxes of carpet tiles does Jemma need to buy?

..... boxes
(2)

(Total for Question 2 is 5 marks)



3 The table gives information about the lengths of some rivers.

River	Length (in kilometres)
Amazon	6437
Mississippi	6275
Congo	4667
Rio Grande	1438

(a) Write the length of the Mississippi to the nearest hundred kilometres.

..... kilometres
(1)

(b) Write the length of the Amazon to the nearest thousand kilometres.

..... kilometres
(1)

*(c) A television newsreader says,

“The length of the Congo is more than three times the length of the Rio Grande”.

Is he right?

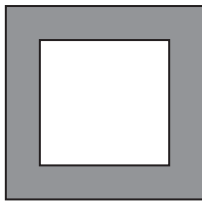
You must show all your working.

(3)

(Total for Question 3 is 5 marks)



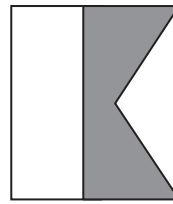
4 Here are some flags.



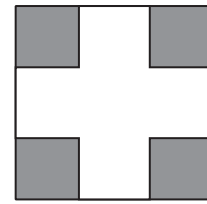
A



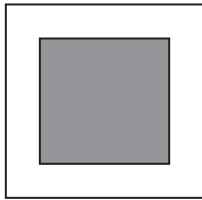
B



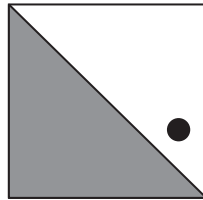
C



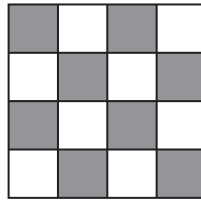
D



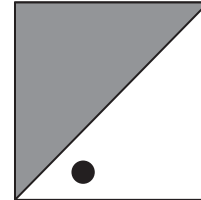
E



F



G



H

Two of these flags have exactly one line of symmetry.

(a) Write down the letters of these two flags.

..... and
(2)

(b) Write down the order of rotational symmetry of flag D.

.....
(1)

Two of these flags are congruent.

(c) Write down the letters of these two flags.

..... and
(1)

(Total for Question 4 is 4 marks)



5 Quadi buys sandwiches to sell in his shop.

The table gives information about the number of sandwiches he buys and the number of sandwiches he sells on Monday, on Tuesday and on Wednesday.

	Number of sandwiches he buys	Number of sandwiches he sells
Monday	20	15
Tuesday	18	10
Wednesday	15	12

Quadi does **not** sell all the sandwiches he buys on these 3 days.

Work out the total number of sandwiches he does **not** sell.

..... sandwiches

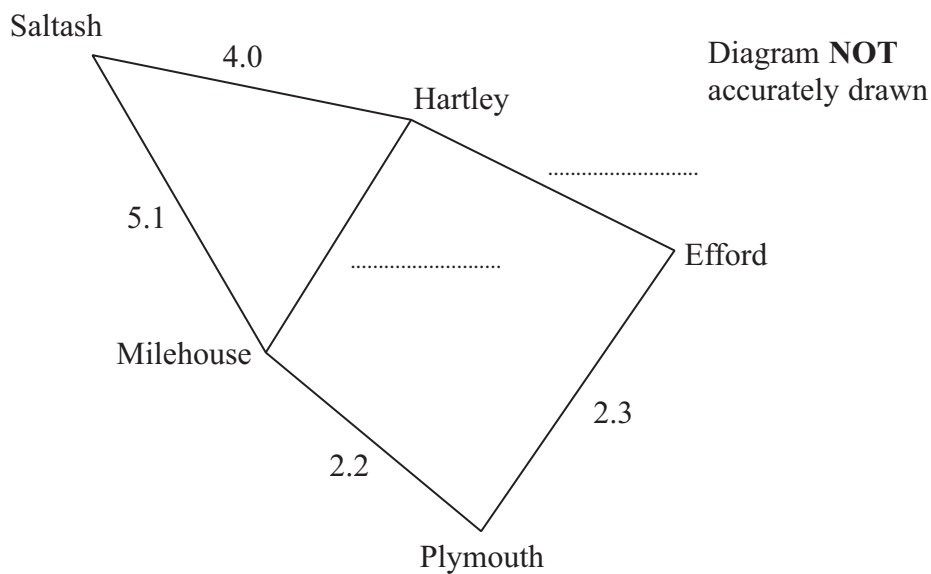
(Total for Question 5 is 3 marks)



6 The table shows the shortest distances by road, in miles, between five places.

Saltash				
4.0	Hartley			
	2.0	Efford		
5.1	1.6		Milehouse	
		2.3	2.2	Plymouth

The diagram shows some of the information in the table.



(a) Use the information in the table to complete the diagram.

(2)



David drives a school bus.
He starts his journey in Plymouth.
He collects children from Milehouse, Saltash and Hartley.
He finishes his journey in Plymouth.

David wants to drive the route with the shortest total distance.

(b) (i) Find the route with the shortest total distance.

.....

.....

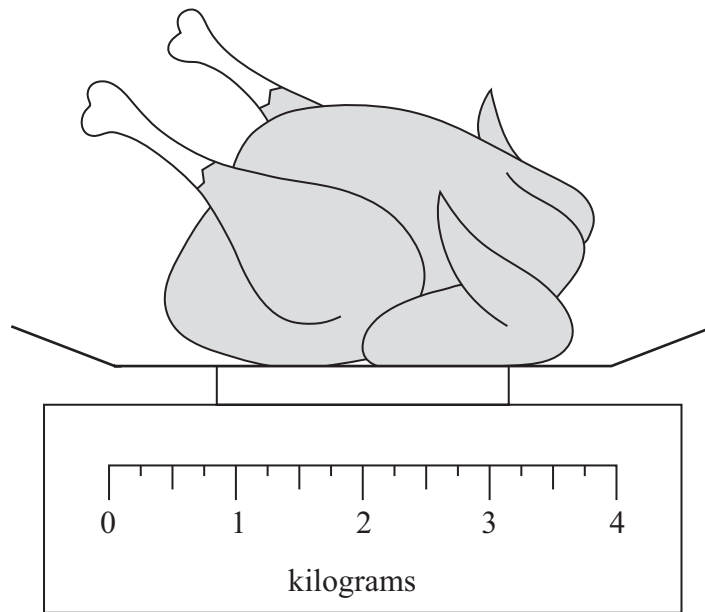
(ii) Work out the total distance of this route.

..... miles
(4)

(Total for Question 6 is 6 marks)



7 Here is a chicken on some scales.



The chicken weighs 2.5 kilograms.

(a) (i) On the scales mark, with an arrow (\uparrow), a weight of 2.5 kilograms.

(ii) Change 2.5 kilograms to grams.

..... grams
(2)

Hafiz is going to cook the chicken.

The weight of the chicken is 2.5 kilograms.

The chicken has to be cooked for 20 minutes for each 0.5 kilograms of its weight.

He wants the chicken to finish cooking at 1 pm.

(b) At what time should Hafiz start cooking the chicken?

.....
(3)

(Total for Question 7 is 5 marks)



8 Fiona buys some stamps.

A first class stamp costs 46p.

A second class stamp costs 36p.

Fiona buys 3 first class stamps and 1 second class stamp.

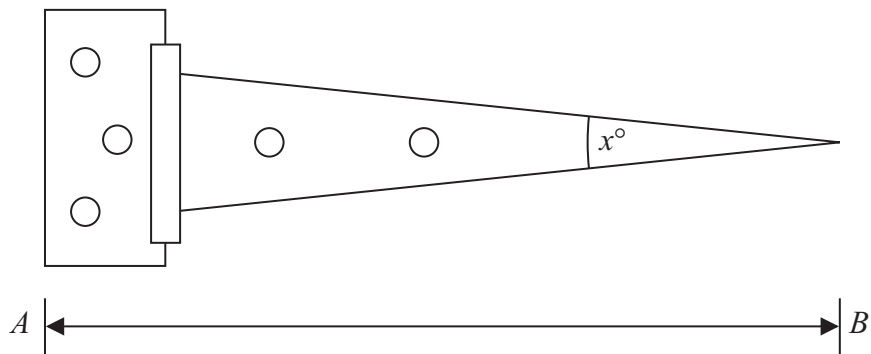
She pays with a £2 coin.

How much change should she get?

.....
(Total for Question 8 is 3 marks)



9 Here is a diagram of a hinge.



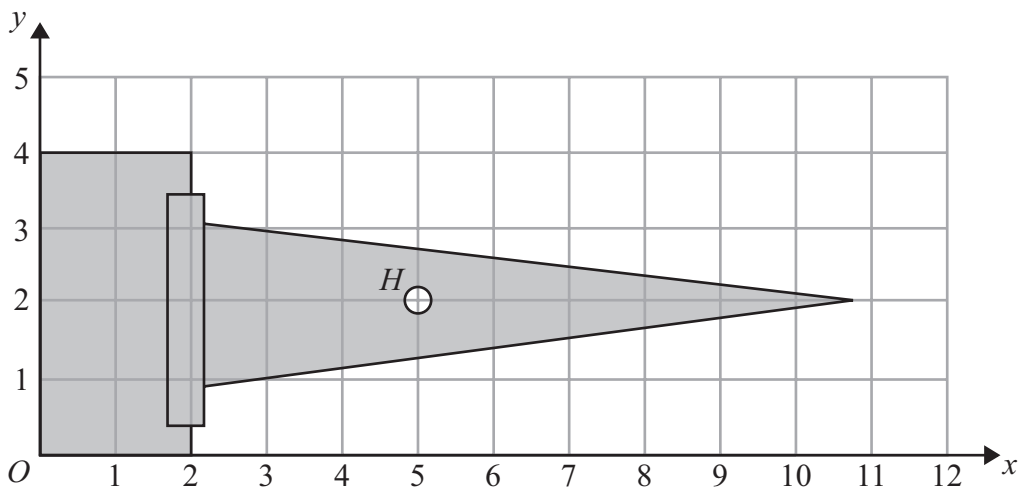
(a) Measure the length of the line AB .

..... cm
(1)

(b) Measure the size of the angle marked x° .

.....
(1)

A machine drills holes into hinges.
The position of each hole is given as a coordinate.



On the grid, H is the centre of a hole.

(c) Write down the coordinates of the point H .

(..... ,)
(1)

(Total for Question 9 is 3 marks)



10 The table gives information about some washing machines.

name	load type	maximum load (kg)	spin speed	amount of water used (gallons)
Tanishi	front	5	1600	15
Tomsat	top	5	1500	14.5
Zeedo	top	4.5	1475	14
Azer	top	4.8	1600	14
Frex	front	4.2	1750	12
Wasu	front	5	1500	12

(a) Write down the load type of the Tanishi washing machine.

.....
(1)

One of the washing machines has a maximum load of 4.8 kg.

(b) Write down the spin speed of this washing machine.

.....
(1)

One of the washing machines has the greatest maximum load **and** uses the least amount of water.

(c) Write down the name of this washing machine.

.....
(1)

A Zeedo washing machine costs £300 plus VAT at 20%.

(d) Work out 20% of £300

£.....
(2)

(Total for Question 10 is 5 marks)



11 Here are some temperatures.

5 °C

-2 °C

0 °C

-7 °C

9 °C

- (a) Write down these temperatures in order.
Start with the lowest temperature.

.....
(1)

Some temperatures were recorded on 1st January in Birmingham.

At 9 am the temperature was -1 °C.

At 1 pm the temperature was 4 °C.

- (b) Work out the increase in the temperature from 9 am to 1 pm.

..... °C
(1)

The table shows some information about the mean maximum temperature and the mean minimum temperature each quarter in Manchester.

temperature (°C)	Jan – Mar	Apr – Jun	Jul – Sep	Oct – Dec
maximum	8	15	19	10
minimum	6	7	11	4



12 Gary recorded the number of eggs in each of 10 nests.

Here are his results.

1 1 2 2 2 2 3 3 3 4

(a) Write down the mode.

.....
(1)

(b) Work out the mean.

.....
(2)

(c) Which best describes the average numbers of eggs in these nests, the mode or the mean?
Give a reason for your answer.

.....
.....
(1)

(Total for Question 12 is 4 marks)



13 Here is a rectangle.

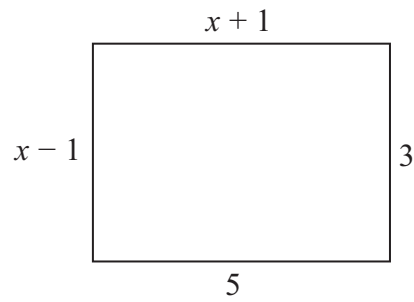


Diagram **NOT** accurately drawn

(a) Find the value of x .

.....
(1)

Here is a triangle.

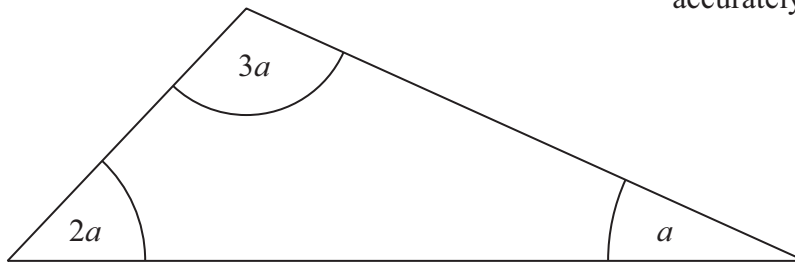


Diagram **NOT** accurately drawn

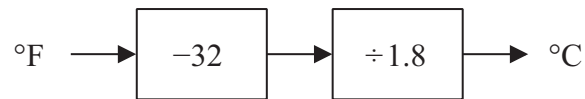
(b) Find the value of a .

.....
(2)

(Total for Question 13 is 3 marks)



14 You can use this number machine to change between °F and °C.



A clay pot is baked in an oven.
The temperature in the oven is 2192 °F.

(a) Change 2192 °F to °C.

.....°C
(2)

The temperature in an office must not be less than 16 °C.

(b) Change 16 °C to °F.

.....°F
(3)

(Total for Question 14 is 5 marks)



15

Prices	
tomatoes	£2.80 per kg
mushrooms	£3.60 per kg

Kumar buys some tomatoes and some mushrooms.
The total cost is £7.24

Kumar buys 1.75 kg of tomatoes.

Work out the weight of the mushrooms that he buys.

..... kg

(Total for Question 15 is 4 marks)



16 Kevin asked 50 students if they like football best or rugby best.

15 boys and 12 girls said they like football best.

10 girls said they like rugby best.

Use this information to complete the two-way table.

	football	rugby	total
boys			
girls			
total			

(Total for Question 16 is 3 marks)



17 Here is a knife.

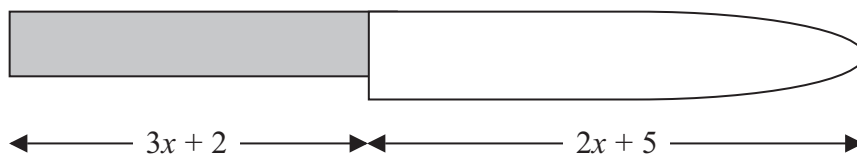


Diagram **NOT**
accurately drawn

All measurements are in centimetres.

The length of the handle is $3x + 2$

The length of the blade is $2x + 5$

The total length of the knife is 19 cm.

(i) Show that $5x + 7 = 19$

(ii) Solve $5x + 7 = 19$

$x = \dots\dots\dots$

(Total for Question 17 is 4 marks)



18 Nails of length 35 millimetres are sold in three sizes of packets.

There are 20 nails in a small packet, costing £1.36

There are 50 nails in a medium packet, costing £3.30

There are 90 nails in a large packet, costing £6.03

Small	Medium	Large
£1.36	£3.30	£6.03
20 nails	50 nails	90 nails

*(a) Which size of packet is the best value for money?
You must show clearly how you got your answer.

(4)



Nails of different lengths are sold in mixed packets.

Here are the lengths, in millimetres, of the nails in a mixed packet.

20	35	49	30	45
40	50	25	39	30
30	37	47	55	28

(b) Draw an ordered stem and leaf diagram for this information.

(3)

(c) Find the median length.

..... mm

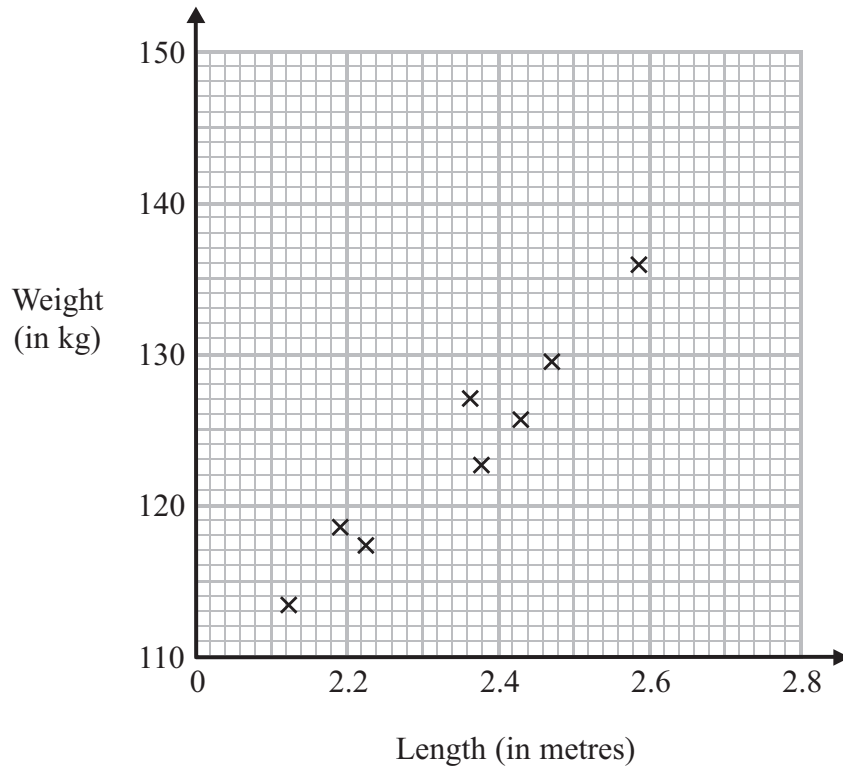
(1)

(Total for Question 18 is 8 marks)



19 A scientist recorded the lengths and the weights of 8 dolphins.

The scatter graph shows information about these dolphins.



(a) Describe the relationship between the length and the weight of these dolphins.

(1)

A dolphin has a length of 2.54 metres and a weight of 132 kg.

(b) Show this information on the scatter graph.

(1)

A dolphin has a length of 2.3 metres.

(c) Estimate the weight of this dolphin.

..... kg

(2)

(Total for Question 19 is 4 marks)



20 Kim works for a company.

She is paid 40p per mile for each mile she has to drive.

Here is the spreadsheet Kim uses to calculate how much she will be paid for the distances she drove last week.

	A	B	C	D
1	day	distance (miles)	pounds per mile	amount paid (£)
2	Monday	80	0.4	32.00
3	Tuesday		0.4	
4	Wednesday		0.4	
5	Thursday		0.4	
6	Friday		0.4	
7	total			

Write down the formula to go

(i) in cell D3

.....

(ii) in cell B7.

.....

(Total for Question 20 is 3 marks)

21 Gary wants to find out which subjects students like best at his school.

Design a suitable table for a data collection sheet he could use.

(Total for Question 21 is 3 marks)



*22 The diagram shows the plan of a floor.

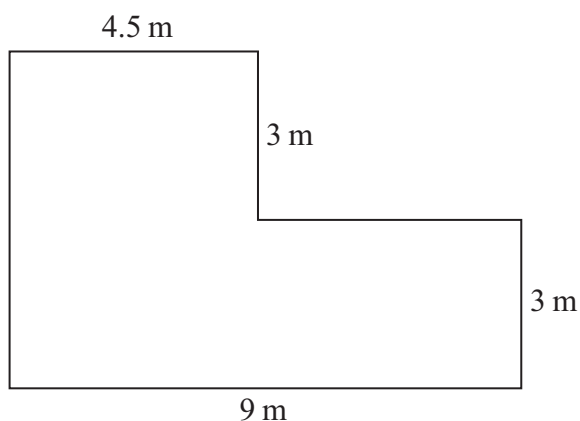


Diagram **NOT**
accurately drawn

All the corners of the floor are right angles.

Jason wants to cover the floor completely with underlay.

Underlay is sold in rolls.

Each roll of underlay has a length of 5 m and a width of 1.5 m.

Each roll of underlay costs £59.99

Jason has £400 to spend.

Does Jason have enough money to buy the underlay he needs?

(Total for Question 22 is 4 marks)

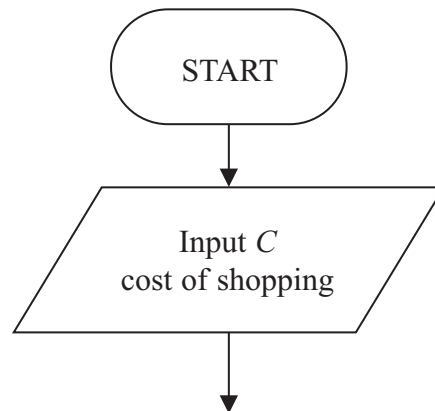


23 At Pete's Store you get £8 off the cost of your shopping when the cost of your shopping comes to more than £100

You can use a flow chart to work out the amount a customer pays at Pete's Store.

Complete the flow chart.

You must include an output box.



(Total for Question 23 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS



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