

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

Thursday 25 May 2017 – 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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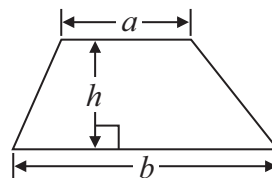
Pearson

GCSE Mathematics 2AM01

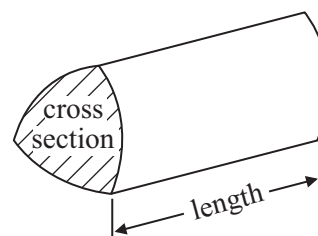
Formulae: Foundation Tier

**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



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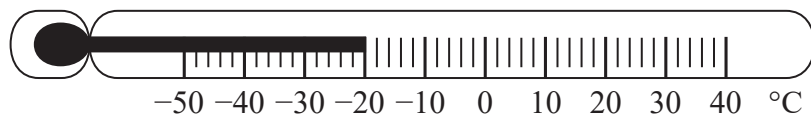
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Answer ALL questions.

Write your answers in the spaces provided.

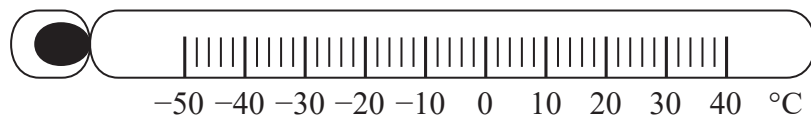
You must write down all the stages in your working.

1 (a) What temperature is shown on this thermometer?



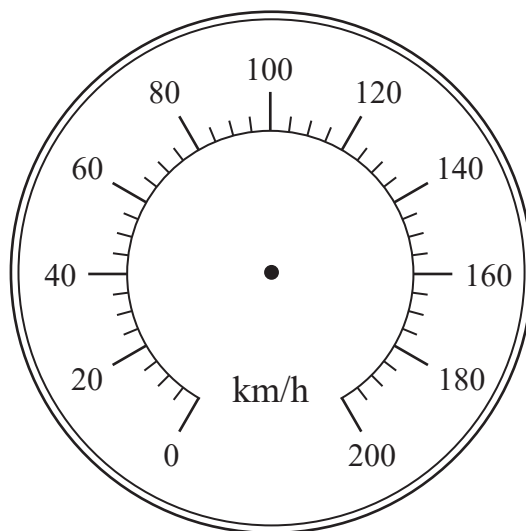
..... °C
(1)

(b) On the thermometer below, draw an arrow (\downarrow) to show a temperature of 18 °C.



(1)

This is a picture of a speedometer.



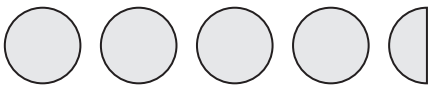
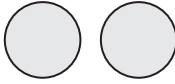
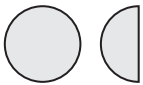
(c) Draw an arrow to show a speed of 65 km/h.


(1)

(Total for Question 1 is 3 marks)



- 2 The pictogram shows the number of tins of dog food sold in a shop on Monday, on Tuesday and on Wednesday last week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

Key:  represents 10 tins

On Thursday, 50 tins of dog food were sold in the shop.
On Friday, 35 tins of dog food were sold in the shop.

- (a) Use this information to complete the pictogram.

(2)

More tins of dog food were sold on Monday than on Tuesday.

- (b) How many more tins?

.....
(2)

(Total for Question 2 is 4 marks)



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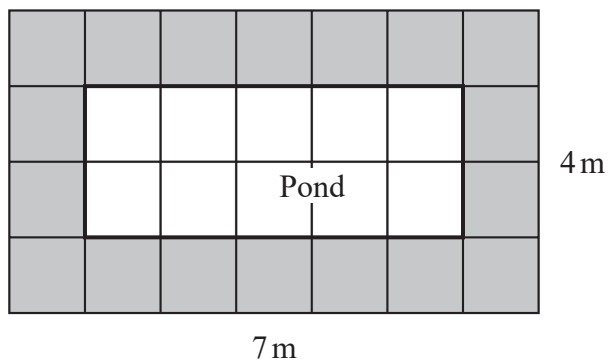
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3 Sachin has 16 square paving stones.
 The paving stones are all the same size.
 He will use all the paving stones to make a patio that is a rectangle.

(a) Draw a diagram to show how Sachin can use the 16 paving stones to make a patio that is a rectangle.

(2)

(b) The diagram shows a pond with a path round it.
 The path is made from square paving stones that are all the same size.



(i) Work out the perimeter of the pond.

..... m

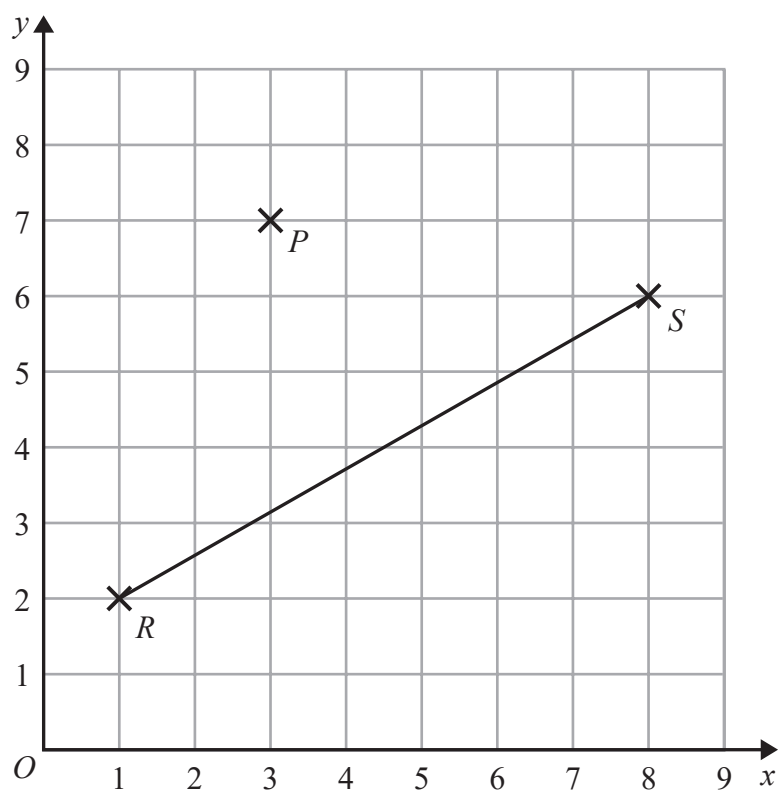
(ii) Work out the area of the path.

.....
 (3)

(Total for Question 3 is 5 marks)



- 4 Here is a plan of a building site.
The site has been marked out in squares.



There is an iron bar at P .

- (a) Write down the coordinates of the point P .

(.....,)
(1)

There is a hole at the point with coordinates $(5, 2)$.

- (b) On the grid, mark with a cross (\times) the position of the hole.
Label this point Q .

(1)

A pipe goes from the point R to the point S .

The midpoint of RS is M .
Nick wants to mark M with tape.

- (c) Find the coordinates of M .

(.....,)
(2)

(Total for Question 4 is 4 marks)



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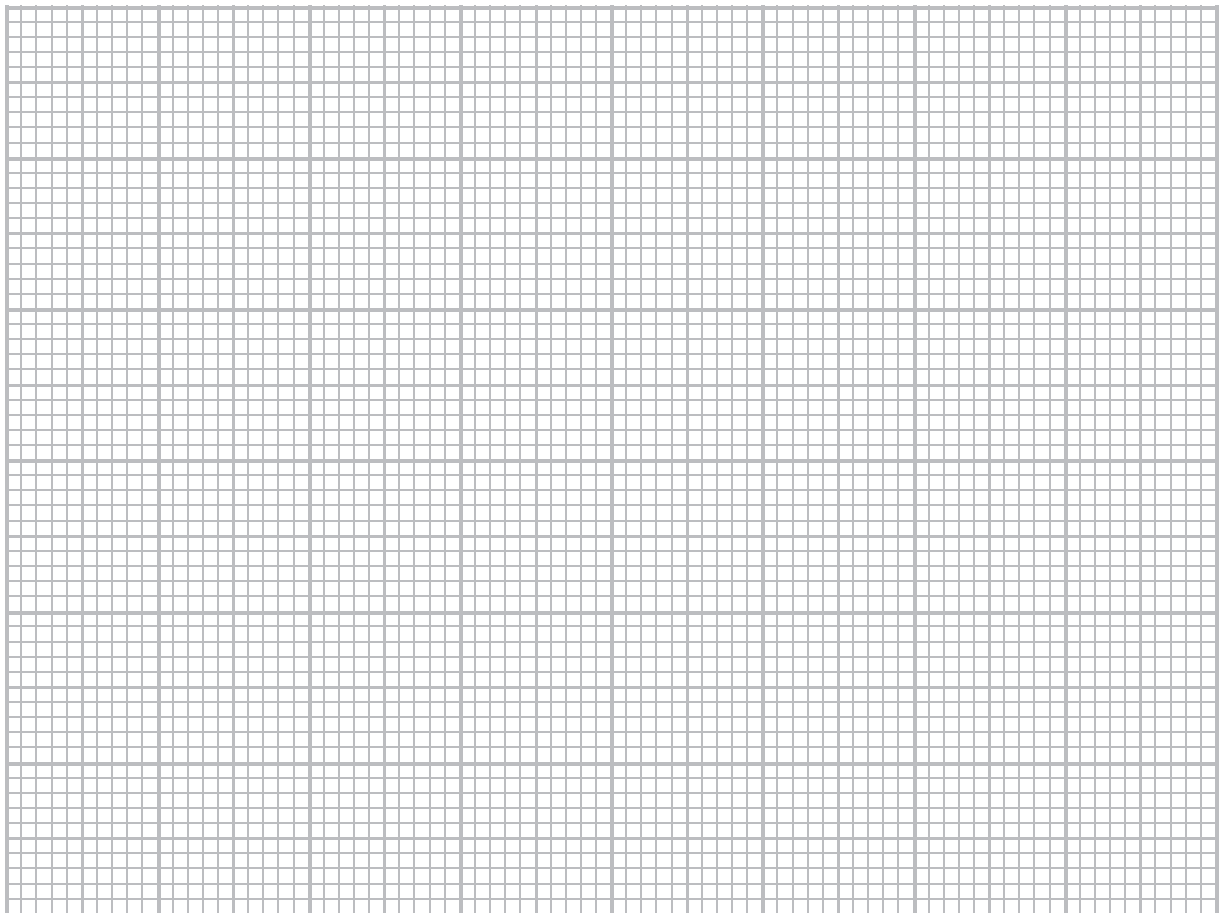
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*5 Geoff owns two garages.
He records the numbers of cars sold each week by his two garages.
The table below shows this information.

Week	1	2	3	4	5
Cars sold by garage A	24	30	34	38	44
Cars sold by garage B	40	38	34	30	36

Show this information in a suitable chart or diagram.



(Total for Question 5 is 4 marks)



6 Here are the amounts of money earned each week by 10 workers in a company.

£280 £280 £200 £240 £300 £280 £260 £320 £270 £250

(a) Work out the mean.

£.....
(2)

(b) Work out the median.

£.....
(2)

(c) Find the mode.

£.....
(1)

(d) Work out the range.

£.....
(2)

(Total for Question 6 is 7 marks)



7 Tolu works as a sales representative for a company.

She has to drive to shops to show the products her company makes.

The table gives information about how far she drives each day one week on company business.

	Monday	Tuesday	Wednesday	Thursday	Friday
Miles	34	58	0	56	86

The company pays Tolu these expenses for each day she drives on company business.

45p for each mile she drives

£12.50 for lunch on each day she drives

Work out the total amount of expenses that Tolu will get for the week.

£.....

(Total for Question 7 is 5 marks)



8 Colin bought a packet of tomato seeds.

The table shows the months when Colin planted his tomato seeds.
It also shows the months when Colin picked the tomatoes.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Plant		✓	✓	✓								
Pick							✓	✓	✓	✓		

(a) Write down the latest month Colin planted his tomato seeds.

.....
(1)

(b) In how many months did Colin pick the tomatoes?

.....
(1)

The packet of tomato seeds costs £2.49

Colin also bought some plant pots and some compost for the tomato seeds.

The incomplete bill gives information about the cost of growing the tomatoes.

(c) Complete the bill.

Eden Garden Centre			
Description	Number	Cost of each item	Total
Packet of seeds	1	£2.49	£
Small plant pots	6	59p	£
Large plant pots	3	£	£11.97
Bag of compost	1	£5.95	£5.95
		Total	£

(4)



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Colin picked 16 kg of tomatoes from his plants.
In a shop, the cost of 1 kg of tomatoes was £2.80

- (d) Was it cheaper for Colin to grow 16 kg of tomatoes or to buy 16 kg of tomatoes?
You must show clearly how you get your answer.

(2)

(Total for Question 8 is 8 marks)



P 5 3 4 9 9 A 0 1 1 3 2

9 Paloma is going to make a nest box for birds.

Here is a sketch of the front of the nest box.

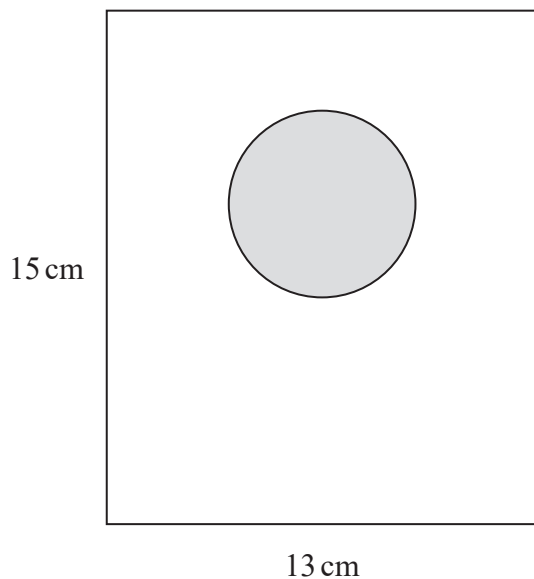


Diagram NOT accurately drawn



Nest box

The front of the nest box is a piece of wood in the shape of a rectangle with a circular hole in it.

An accurate full sized drawing of the rectangle is shown on the page opposite.

P is the centre of the circular hole.

M is the midpoint of the top edge of the piece of wood.

(a) Measure the distance PM .

..... cm

(1)

(b) On the diagram opposite, draw a circle, centre P , with a diameter of 5 cm.

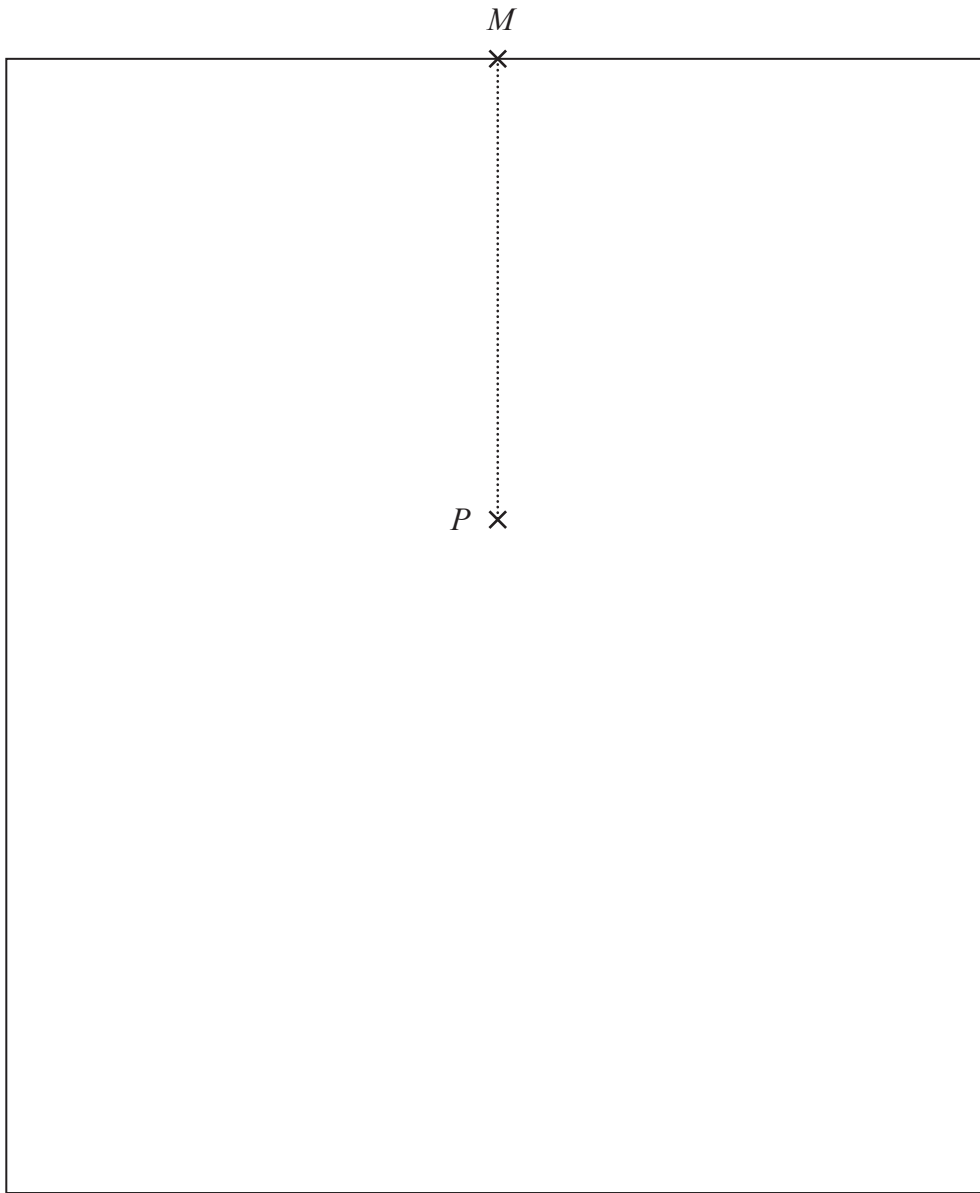
(2)



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(Total for Question 9 is 3 marks)



P 5 3 4 9 9 A 0 1 3 3 2

- 10 The table shows some information about the average adult spending in 2015 as a percentage of average **total** adult spending in 2015

Item	Percentage
food	12%
housing	14%
leisure	9%
clothes	5%
transport	15%
household goods	8%
other items %

- (a) Complete the table to show the percentage spending on other items.

(2)

In June 2015, Marek spent a total of £525
He spent £65 of the £525 on food.

- *(b) Compare the percentage that Marek spent on food with the average adult spending on food.

(3)

(Total for Question 10 is 5 marks)

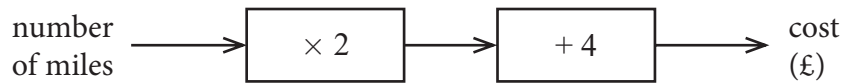


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11 A taxi firm uses this number machine to work out the cost, in pounds (£), of a taxi journey.



A taxi journey is 7 miles.

(a) Work out the cost.

£.....
(2)

The cost of a different taxi journey was £26

(b) For this journey, work out the number of miles.

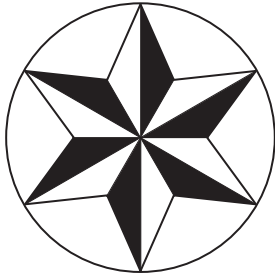
..... miles
(3)

(Total for Question 11 is 5 marks)

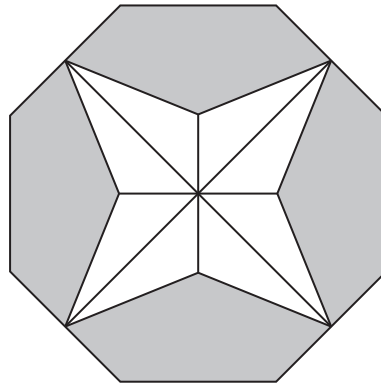


12 Ashley makes wooden boxes.

Here are the tops of two different boxes.



Box A



Box B

(a) Write down the order of rotational symmetry of the top of box A.

.....
(1)

(b) How many lines of symmetry does the top of box B have?

.....
(1)

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Ashley is going to make a different box.
The top of this box will be in the shape of an isosceles triangle.

Ashley wants the two small angles to be the same size.
He wants the third angle to be four times the size of each small angle.

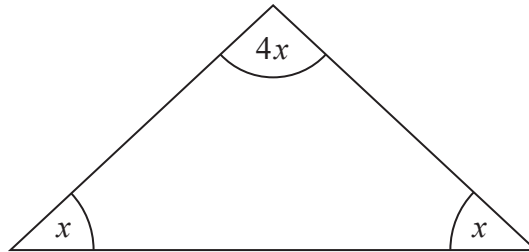


Diagram **NOT**
accurately drawn

(c) Work out the size of each small angle.

.....
(3)

(Total for Question 12 is 5 marks)



13 Lesley goes to the theatre to see her son in a play.

The play lasts 2 hours.

Her son is on stage for 3 minutes.

- (a) What fraction of the time that the play lasts is her son on stage?
Give your fraction in its simplest form.

.....
(2)

Lesley goes by train to the theatre.

The normal price of the train ticket is £34.65

Lesley has a railcard.

She gets $\frac{1}{3}$ off the price of her train ticket.

- (b) How much does Lesley pay for her train ticket?

£.....
(3)

(Total for Question 13 is 5 marks)



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*14 Josh and Alice both play their guitars in a band.
The band plays for 90 minutes.

Josh plays his guitar for 80% of this time.

Alice plays her guitar for $\frac{5}{6}$ of this time.

Who plays the guitar for the longer time, Josh or Alice?

(Total for Question 14 is 3 marks)



P 5 3 4 9 9 A 0 1 9 3 2

15 A machine makes 42 trophies every hour.

The machine makes trophies for $7\frac{1}{2}$ hours each day, on 5 days each week.

The trophies are packed into boxes.
12 trophies are packed into each box.

How many boxes are needed for all the trophies that are made each week?

.....
(Total for Question 15 is 4 marks)

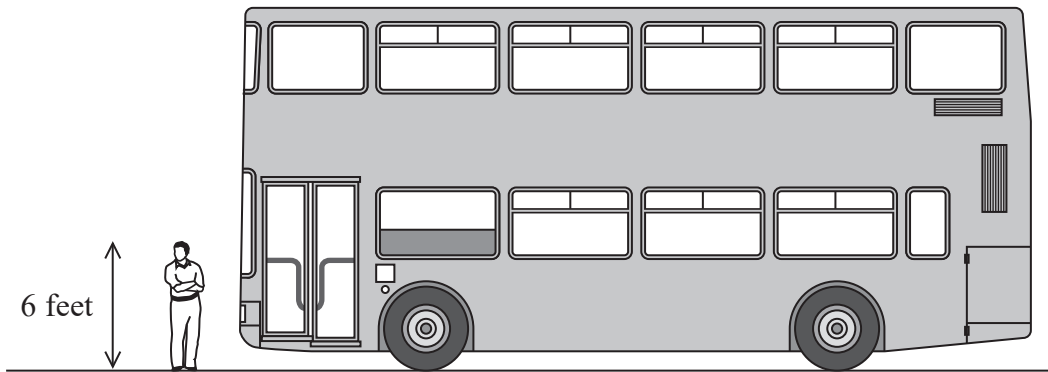
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- *16 The picture shows a man standing next to a bus.
The man and the bus are drawn to the same scale.



The man wants to drive the bus along a road.
A bridge over the road has a height of 4.8 metres.

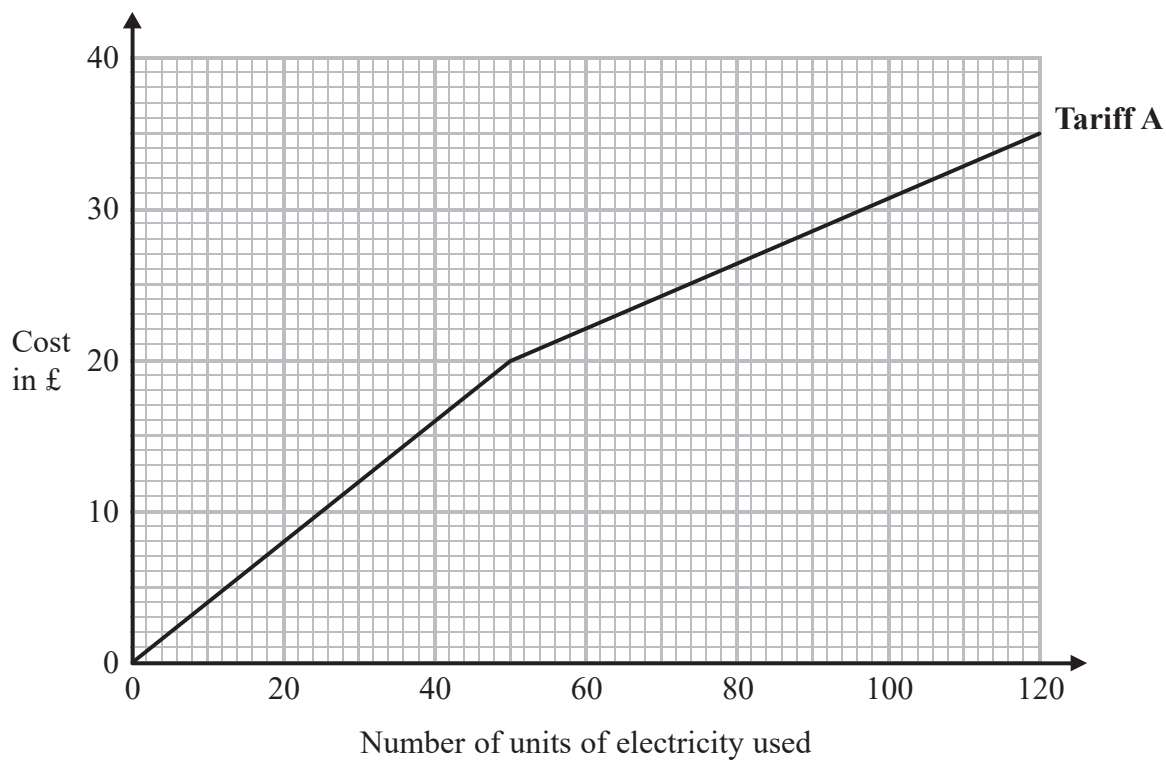
Can the man drive the bus under the bridge?
You must show clearly how you get your answer.

(Total for Question 16 is 4 marks)



17 Beth pays on Tariff A for the number of units of electricity she uses.

She can use this graph to find out how much she pays each month.



(a) How much does Beth pay for each unit of electricity she uses up to a total of 50 units?

.....
(2)



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Beth could change to Tariff B.
Here is the monthly charge for Tariff B.

30p per unit of electricity used

On average, Beth uses 80 units of electricity each month.
Beth wants to pay the least amount of money for the units of electricity she uses.

- *(b) Should Beth change to Tariff B?
You must show all your working.

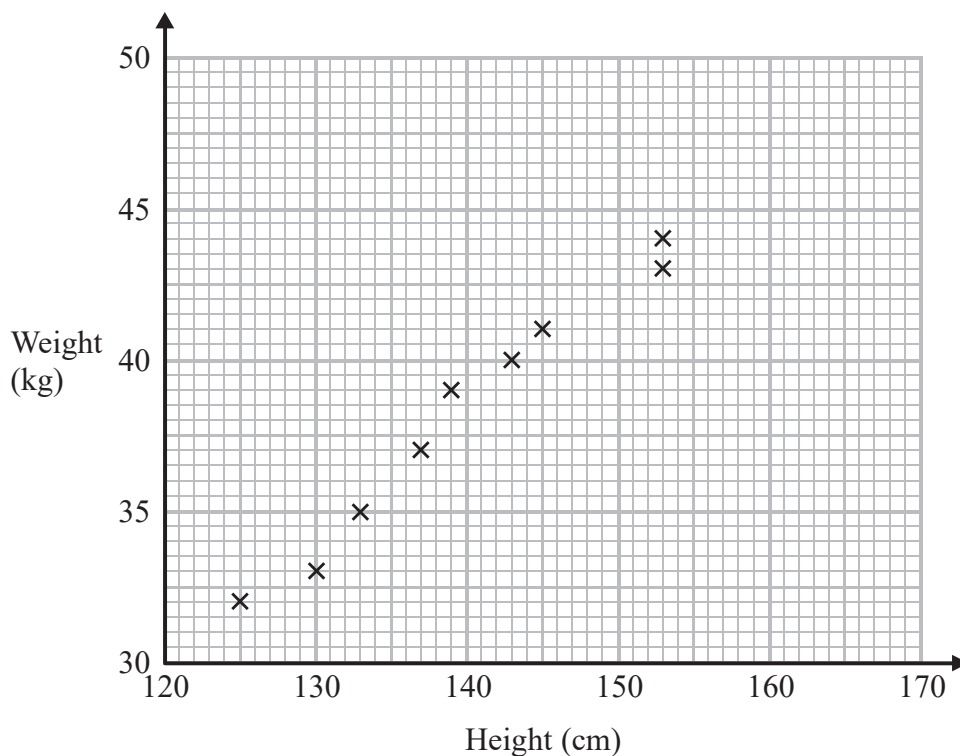
(3)

(Total for Question 17 is 5 marks)



18 Anita recorded the height, in cm, and the weight, in kg, of each of nine children.

The scatter graph shows information about her results.



A different child has a height of 130 cm and a weight of 35 kg.

(a) Plot this information on the scatter graph.

(1)

(b) Describe the relationship between the height and the weight of these children.

(1)

A child has a weight of 42.5 kg.

(c) Use the scatter graph to predict the height of this child.

..... cm

(2)

(Total for Question 18 is 4 marks)



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19 Buzz buys equipment needed for skateboarding.
He then sells this equipment.

Buzz sets up a spreadsheet.
Here is a part of the spreadsheet.

	A	B	C	D
1	Equipment	Buys (£)	Sells (£)	Profit or loss (£)
2	Skateboard	120	165	
3	Balance board	260	235	
4	Bag	40	48	
5	Grind rail	47	54	
6	Ramp			
7	Total			

Buzz buys a ramp for £50
He sells the ramp for £42

(a) Put this information in the spreadsheet.

(2)

(b) Write down the formulas to go into each of the cells D2 and B7

D2.....

B7.....

(3)

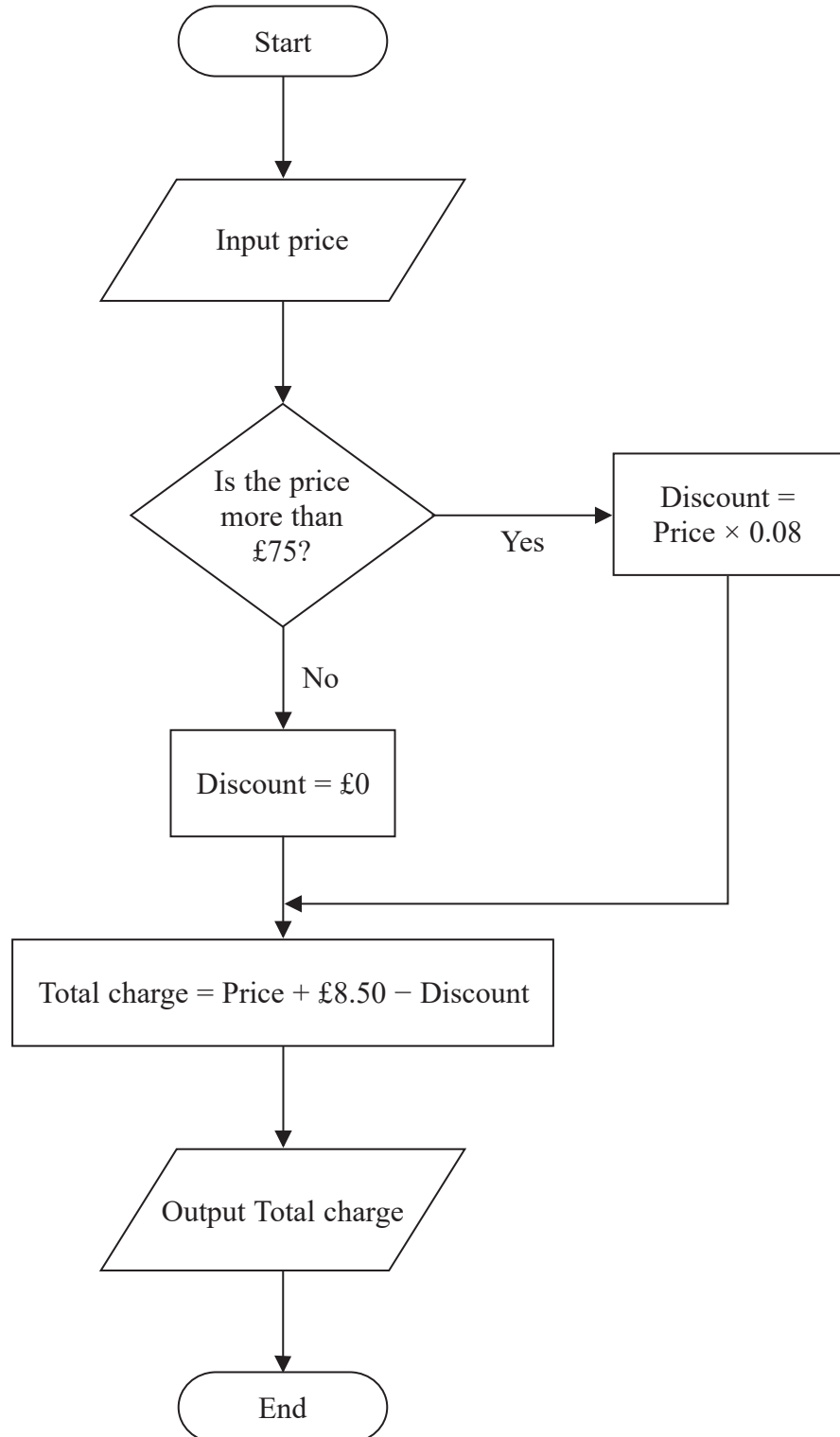
(Total for Question 19 is 5 marks)



20 Earl sells shoes online.

He gives a discount for shoes with a price of more than £75
He charges £8.50 for postage.

Earl uses this flow chart to work out the total charge to customers.



The price of a pair of shoes is £120

- (a) Work out how much Earl will charge for the pair of shoes.

£.....
(2)

Nat bought a pair of shoes from Earl.
The total charge was £42.50

- (b) What was the price of this pair of shoes?

£.....
(1)

Earl is going to change how he works out the total charge.

He is going to change the amount he charges for postage to £11

- (c) In the space below, show the part of the flow chart he needs to change **and** show the change he needs to make.

(2)

(Total for Question 20 is 5 marks)



21 A country has an area of 150 000 square miles.

$\frac{1}{5}$ of this area is forest.

$\frac{2}{3}$ of the area of forest is covered with pine trees.

Work out the area of forest covered with pine trees.

..... square miles

(Total for Question 21 is 3 marks)

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22 Aaron, Bonny and Connor are playing a game with cards.

Aaron has some cards.
Bonny has twice as many cards as Aaron.
Connor has 6 cards more than Bonny.

They have a total of 101 cards.

Work out how many cards Aaron has.
You must show all your working.

.....
(Total for Question 22 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS



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