

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

Monday 14 November 2011 – Morning

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 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.

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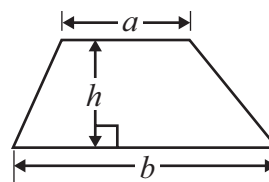
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GCSE Mathematics 2AM01

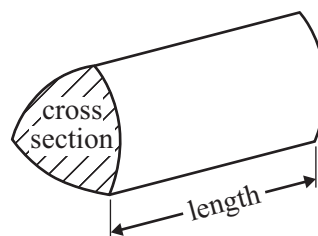
Formulae: Foundation Tier

**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 There are 8437 people at an airport.

(a) Write down the value of the **4** in the number 8437

.....
(1)

A suitcase weighs 24.16 kg.

(b) Write down the value of the **6** in the number 24.16

.....
(1)

On a plane, the maximum weight allowed for hand luggage is 5 kg.

Jane's hand luggage weighs 5460 g.

Jane's hand luggage is too heavy.

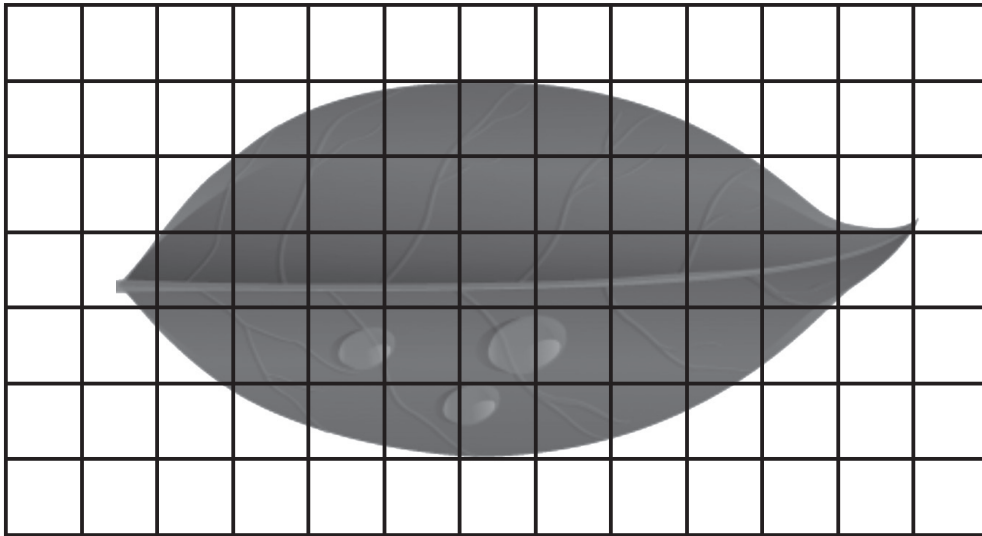
(c) How much too heavy?

.....
(2)

(Total for Question 1 is 4 marks)



2 The diagram shows a leaf on a centimetre square grid.



Estimate the area, in cm^2 , of the leaf.

..... cm^2

(Total for Question 2 is 2 marks)

3 A car park holds 120 cars.
There are 85 cars in the car park.
29 cars leave.
37 cars arrive.

How many more cars can the car park hold now?

.....

(Total for Question 3 is 3 marks)



4 Lara is cutting a 100 cm length of string into

6 cm lengths
8 cm lengths
and 14 cm lengths

First, Lara cuts three 6 cm lengths of string.

She then cuts some 8 cm lengths of string and some 14 cm lengths of string.

There is no string left over.

Work out how many 8 cm lengths of string and 14 cm lengths of string she cuts.

.....

.....

(Total for Question 4 is 4 marks)



- 5 Jenny wants to record 15 minutes of songs for a film.
The table shows the playing time of 3 songs she has recorded.

Song	Playing time
A	4 minutes and 33 seconds
B	3 minutes and 42 seconds
C	3 minutes and 06 seconds

How much more time, in minutes and seconds, does she need to record?

..... minutes seconds

(Total for Question 5 is 4 marks)

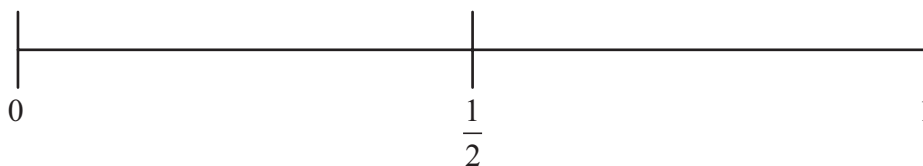


6 A company sells toy cars.
The company has 5 cars left to sell.

2 of the cars are blue.
3 of the cars are red.

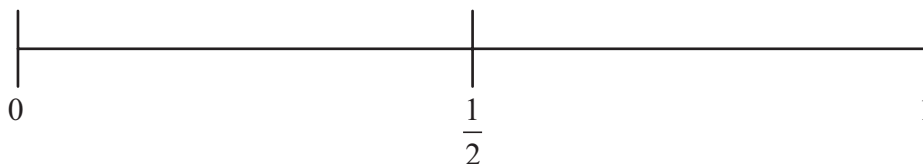
Carl buys a toy car.
The company picks at random the toy car.

(a) On the probability scale, mark with a cross (×) the probability that
Carl gets a yellow car.



(1)

(b) On the probability scale, mark with a cross (×) the probability that
Carl gets a blue car.



(1)

(Total for Question 6 is 2 marks)



7 George and Harry work in a factory.

They use this rule to calculate their total pay in pounds.

$$\text{Total pay} = 8 \times \text{number of hours worked} + \text{bonus}$$

George worked 30 hours.

He was paid a bonus of £20

(a) Work out George's total pay.

£
(2)

Harry worked 34 hours.

His total pay was £300

(b) Work out the bonus that Harry was paid.

£
(3)

(Total for Question 7 is 5 marks)



8 Here is a café menu.

Menu	
Cup of tea	75p
Cup of coffee	95p
Can of cola	80p
Beefburger	£1.65
Hot dog	£1.40

Kerry buys **one** beefburger and **one** can of cola.

(a) Work out the total cost.

£.....
(2)

Tyler wants to buy 2 hot dogs, a cup of tea and a can of cola.
He has a £5 note.

*(b) Does Tyler have enough money?
Give reasons for your answer.

(3)

(Total for Question 8 is 5 marks)

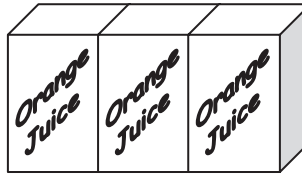


*9 Rumana is going to take some children on a picnic.
She needs 26 cartons of orange juice.

Rumana can buy a single carton of orange juice for 38p.
She can buy a pack of 3 cartons for 90p.



single
carton
38p



3 cartons
90p

Rumana buys all the cartons she needs for the least possible amount of money.
How much did she spend?

(Total for Question 9 is 5 marks)



10 Josh is going to an activity centre.
He has to choose 2 different activities to do.

- Josh can choose from
- Swimming
 - Art
 - Climbing
 - Film making

Write down all the possible pairs of activities that Josh could choose.

.....

.....

.....

.....

(Total for Question 10 is 2 marks)

11 A farm shop sells apples and pears.

Apples cost 45 pence per kg.

(a) Work out the cost of 12 kg of apples.

£.....
(2)

8 kg of pears cost £6

(b) Work out the cost of 5 kg of pears.

£.....
(2)

(Total for Question 11 is 4 marks)



12 A rectangular piece of paper measures n cm by 12 cm.

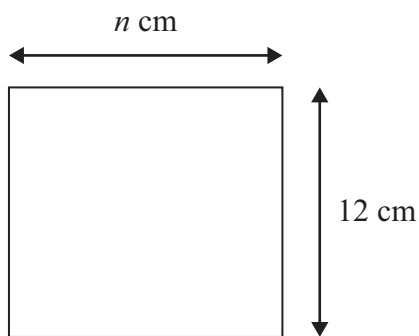
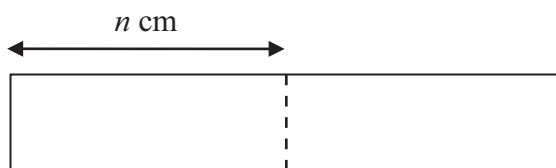


Diagram **NOT** accurately drawn

The paper is cut in half and the two halves are put side by side as shown below.



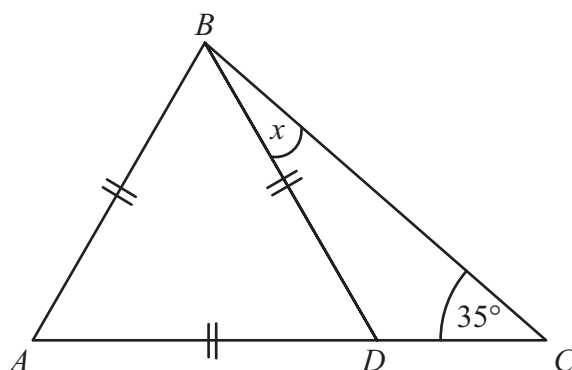
Write a formula for the **perimeter** P of the new rectangle formed.

.....
(Total for Question 12 is 2 marks)



13 The diagram shows part of a roof.

Diagram **NOT**
accurately drawn



ABD is an equilateral triangle.
 ADC is a straight line.

Work out the size of angle x .

.....
(Total for Question 13 is 3 marks)



***14** It costs £17.50 for a rail ticket lasting one day from Stevenage to London.
It costs £2828 for an annual rail ticket lasting one year from Stevenage to London.

Tony travels from Stevenage to London 200 days in every year.

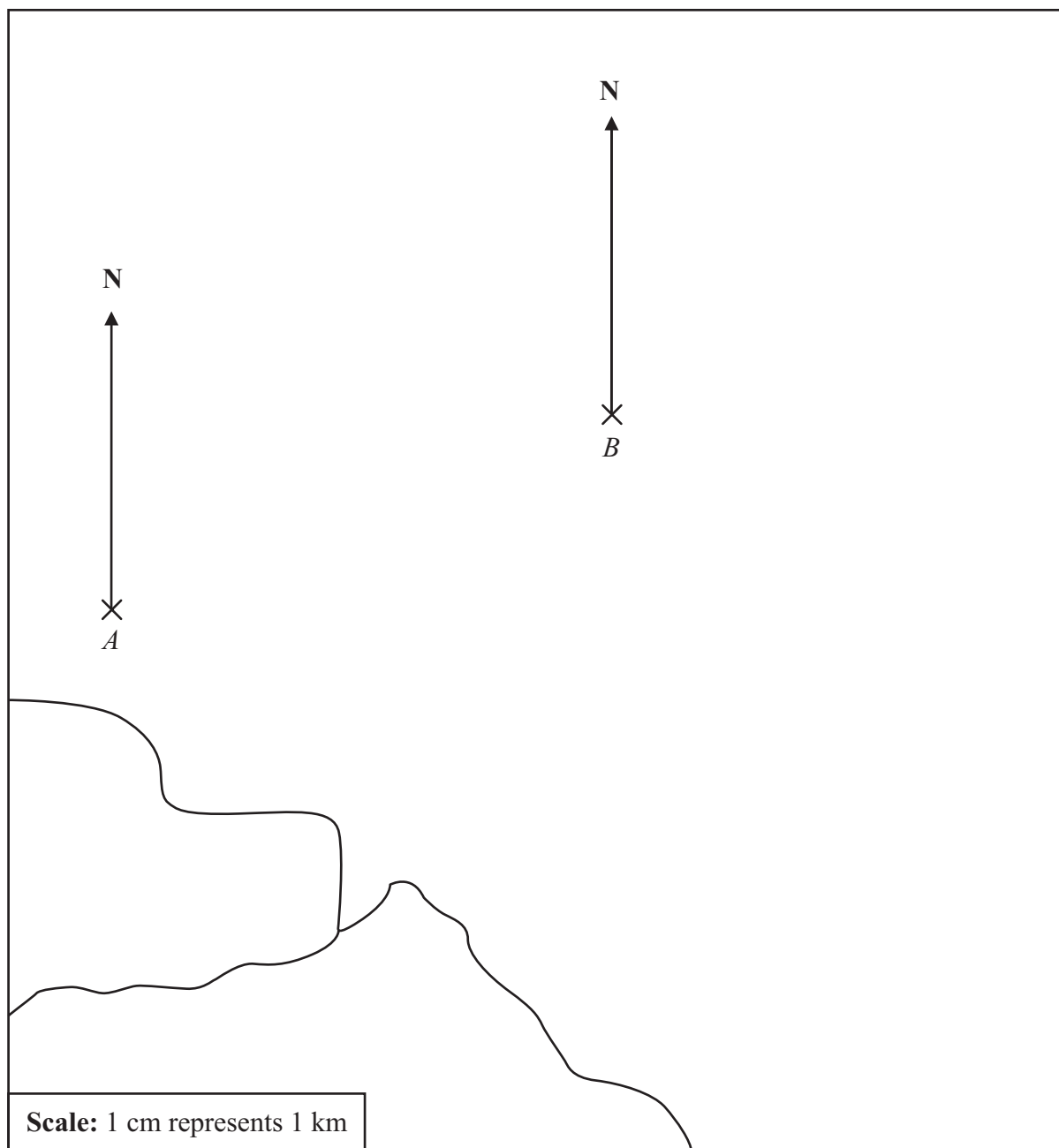
Is it cheaper for Tony to buy a £17.50 ticket each day or to buy a £2828 ticket for the year?

You must show all your working.

(Total for Question 14 is 3 marks)



15 The diagram shows the position of two ships, *A* and *B*.



(a) Find the bearing of ship *B* from ship *A*.

.....
(1)

A ship *C* is on a bearing of 125° from *B*.
This ship is 6 km from *B*.

(b) Mark the position of ship *C* with a cross (×).

(2)

(Total for Question 15 is 3 marks)



16 A shop sells boxes of paper clips.

Each box is a cuboid with
length 6 cm
width 4 cm
height 2 cm

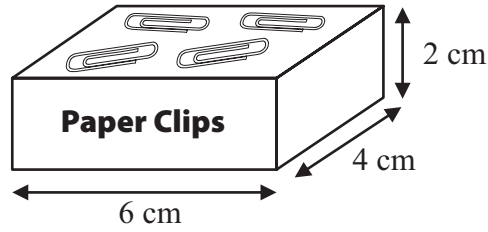
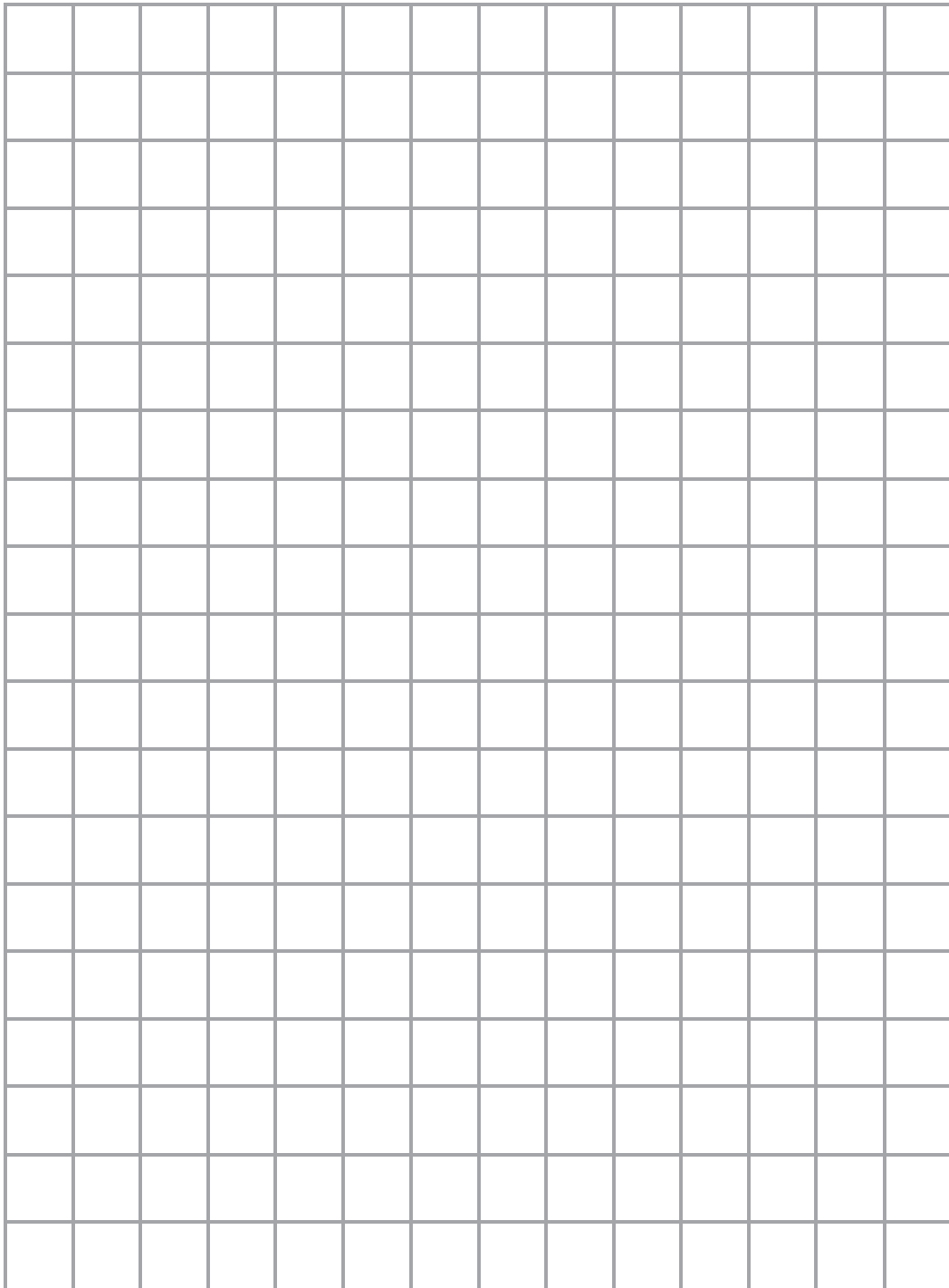


Diagram **NOT** accurately drawn

(a) Draw an accurate net for this cuboid.



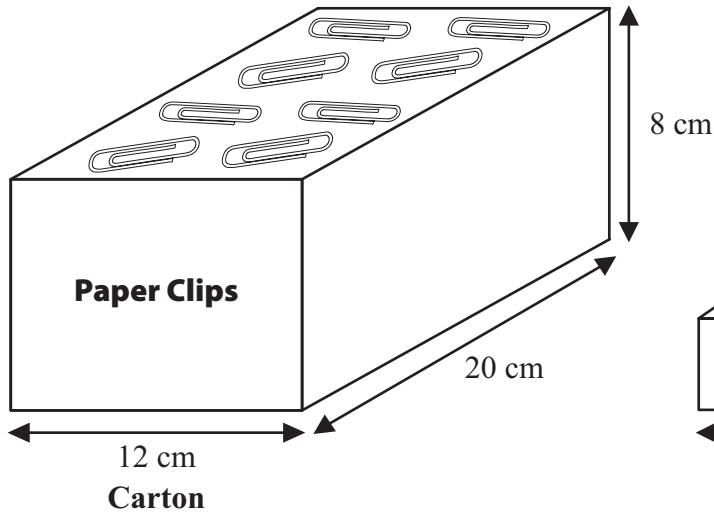
(3)



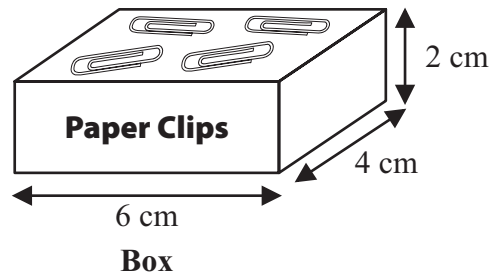
The boxes of paper clips are delivered to the shop in cartons.

A carton has

- length 20 cm
- width 12 cm
- height 8 cm



Diagrams **NOT** accurately drawn



(b) Work out the greatest number of boxes that fit into a carton.

..... boxes
(3)

(Total for Question 16 is 6 marks)



17 Steven is driving from his home to a concert.
It is 78 miles from his home to the concert.

The journey takes $1\frac{1}{2}$ hours.

(a) What is Steven's average speed, in miles per hour, for this journey?

..... miles per hour
(2)

Steven estimates that his car uses 1 gallon of petrol to travel 40 miles.

(b) How many gallons of petrol does Steven expect to use to drive to the concert and back home?

..... gallons
(2)

(Total for Question 17 is 4 marks)



18 The diagram shows part of a bicycle frame.

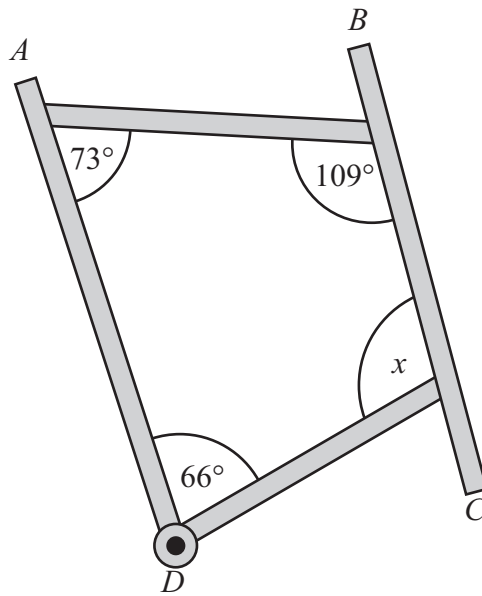


Diagram **NOT** accurately drawn

(a) Work out the size of angle x .

.....
(2)

(b) Are the lines AD and BC parallel?
You must explain your answer.

.....
.....
.....
.....
(2)

(Total for Question 18 is 4 marks)



19 A factory makes light bulbs.

The probability that any light bulb the factory makes is faulty is 0.03

(a) Work out the probability that any light bulb the factory makes is **not** faulty.

.....
(2)

The factory makes 1200 light bulbs.

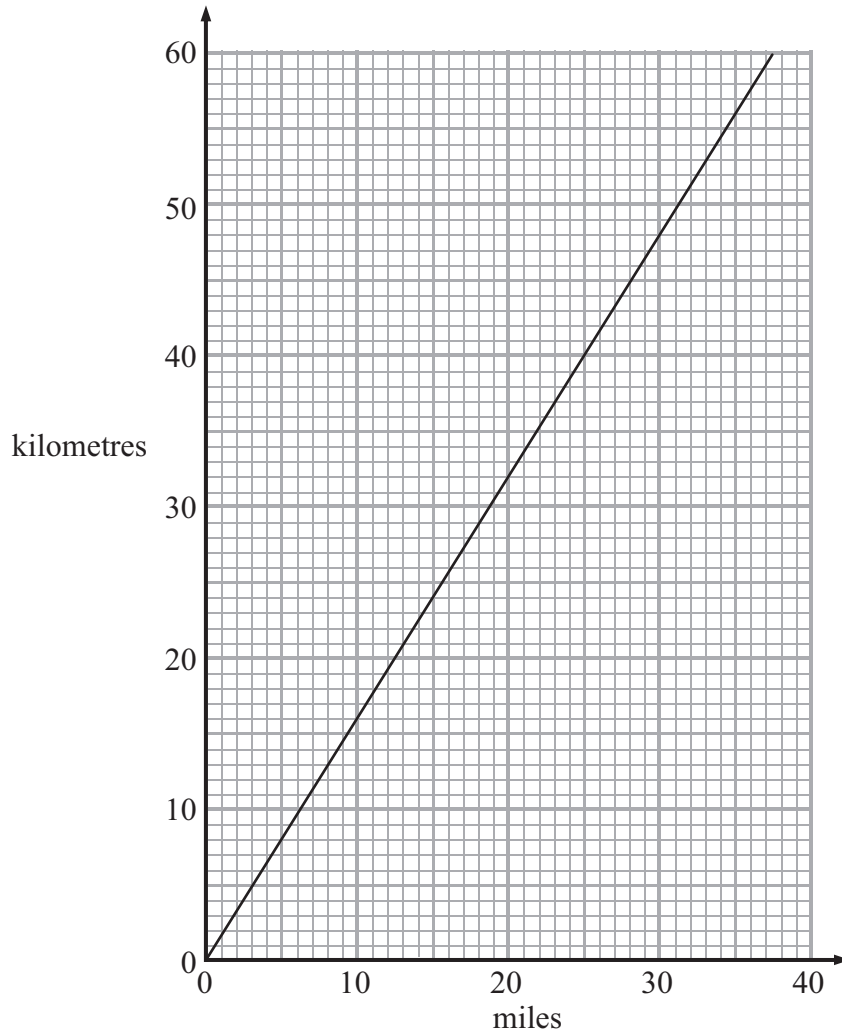
(b) Estimate how many of these light bulbs **will** be faulty.

.....
(2)

(Total for Question 19 is 4 marks)



20 You can use this conversion graph to change between miles and kilometres.



(a) (i) Use the graph to change 20 miles to kilometres.

..... kilometres

(ii) Use the graph to change 48 kilometres to miles.

..... miles

(2)

Sue travels 60 miles.

Henri travels 100 kilometres.

(b) Who travels the furthest?

Give reasons for your answer.

(2)

(Total for Question 20 is 4 marks)



21 Rukia is making a child's toy.

She draws a circle, radius 4 cm, on a piece of wood.

(a) In the space below, draw accurately this circle.

The centre of the circle has been marked with a cross (×).



(1)



Rukia draws an equilateral triangle with side lengths of 7 cm.

(b) In the space below, using ruler and compasses, **construct** an equilateral triangle with sides of length 7 cm.

You must show all your construction lines.

One side of the triangle has been drawn for you.

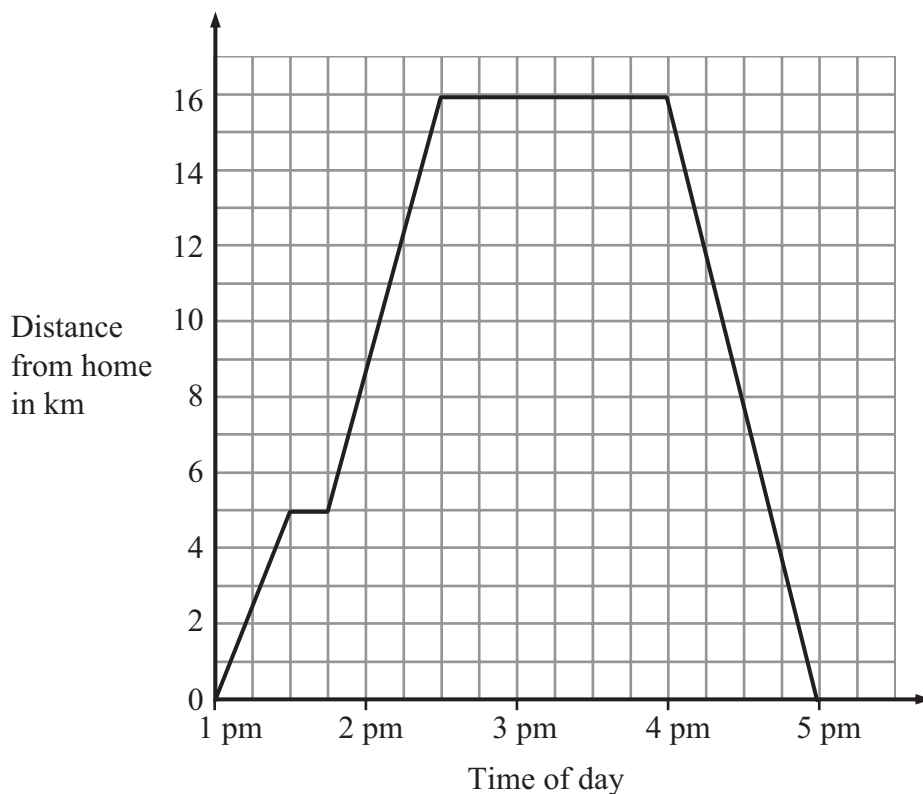


(2)

(Total for Question 21 is 3 marks)



22 The travel graph shows some information about Sarah's trip to the swimming pool.



At 1.30 pm Sarah stopped.

(a) (i) Find her distance from home when she first stopped.

..... km

(ii) For how many minutes did she first stop?

..... minutes
(2)

Sarah got to the swimming pool at 2.30 pm.

(b) Write down the time that Sarah left the swimming pool.

.....
(1)

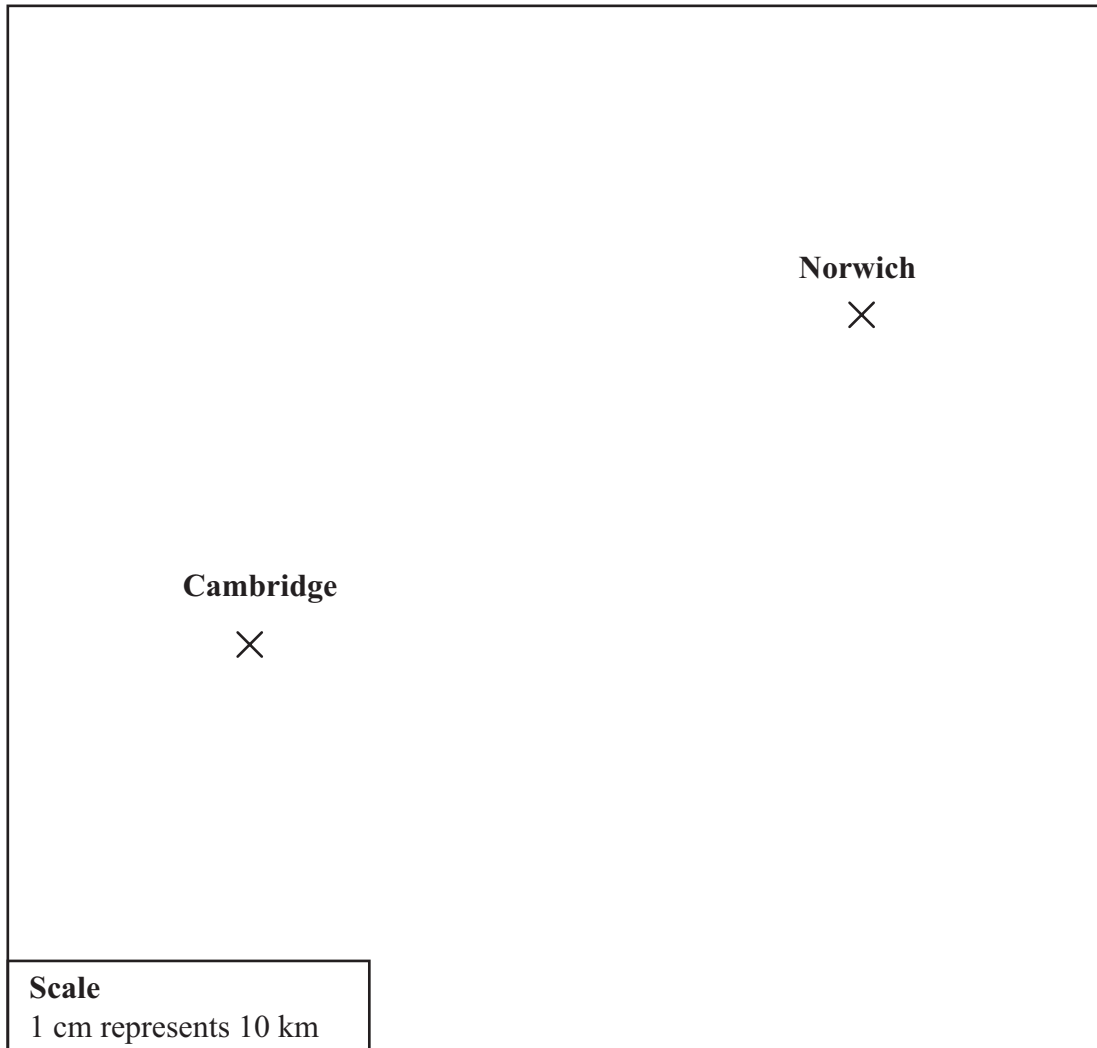
(c) Work out the total distance Sarah travelled on this trip.

..... km
(2)

(Total for Question 22 is 5 marks)



23 The map shows 2 cities, Cambridge and Norwich.



A new hotel is going to be built.

The hotel will be nearer to Norwich than to Cambridge.
It will be less than 60 kilometres from Cambridge.

Shade the region on the map where the hotel could be built.

(Total for Question 23 is 3 marks)



24 A circular flower bed is in the shape of a circle, radius 4.5 metres.

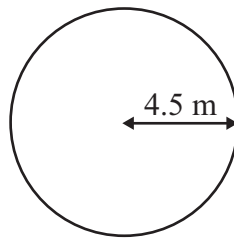


Diagram **NOT**
accurately drawn

- (a) Work out the area of the flower bed.
Give your answer correct to 3 significant figures.

..... m²
(2)

The council plants 1000 flower bulbs in the flower bed.

$\frac{1}{4}$ of the bulbs are daffodil bulbs.

The other bulbs are hyacinth bulbs and tulip bulbs in the ratio 2 : 3

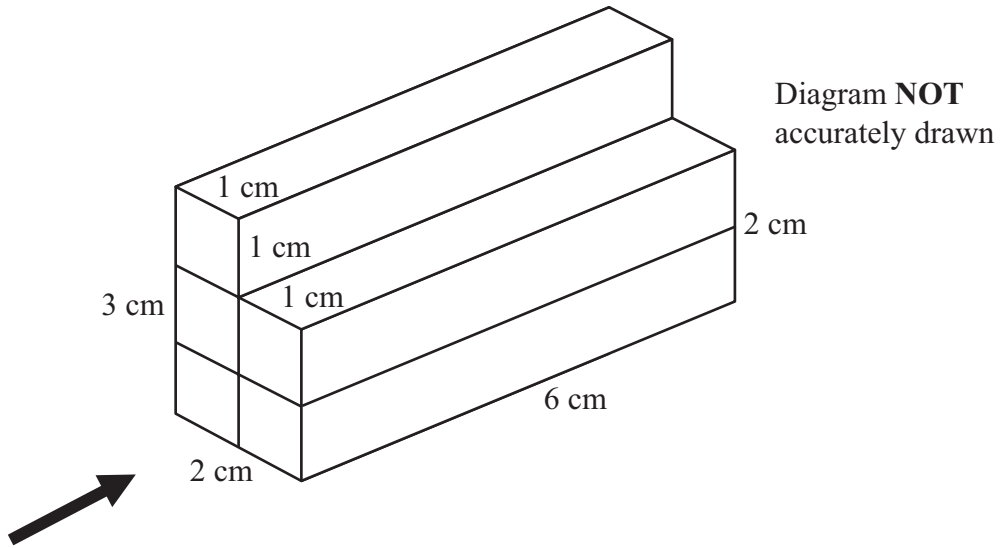
- (b) Work out how many of each bulb the council plants.

..... daffodil bulbs
..... hyacinth bulbs
..... tulip bulbs
(4)

(Total for Question 24 is 6 marks)



25 The diagram shows a sketch of a plastic block.



(a) Draw the side elevation of the plastic block in the direction of the arrow.

(2)

(b) Draw a plan of the plastic block.

(2)

(Total for Question 25 is 4 marks)



26 Ali makes a model of a boat to a scale of 1 : 50

The model is 23 cm long.

(a) Work out the length, in metres, of the real boat.

..... m

(2)

The real boat is 2.4 m wide.

(b) Work out the width, in centimetres, of the model boat.

..... cm

(2)

(Total for Question 26 is 4 marks)

27 $h = ut - 4.9t^2$ is a formula used to work out the height h of a ball thrown upwards.

Work out the value of h when $u = 30$ and $t = 5$

.....

(Total for Question 27 is 2 marks)

TOTAL FOR PAPER IS 100 MARKS

