Write your name here

Surname		Other names

Pearson
Edexcel GCSE

Centre Number

Candidate Number

Applications of Mathematics
Unit 2: Applications 2
For Approved Pilot Centres ONLY

Foundation Tier

Friday 8 November 2013 – 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.
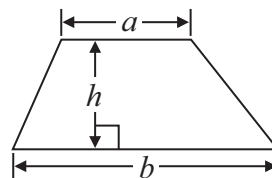
Turn over ▶

P43603A0132

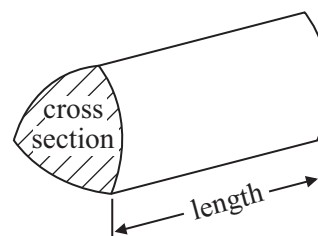**PEARSON**

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

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

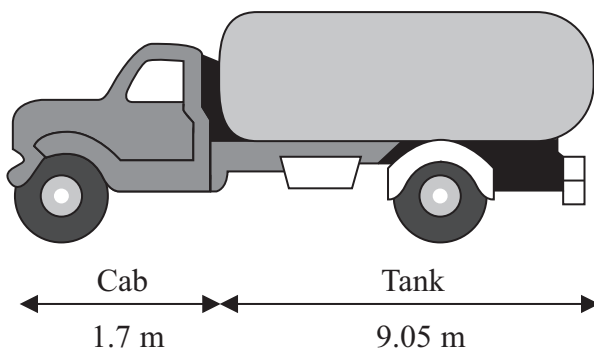**Volume of prism** = area of cross section × length

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 The picture shows an oil tanker.

Cab   Tank

1.7 m   9.05 m

The cab is 1.7 m long.
The tank is 9.05 m long.

(a) Work out $1.7 + 9.05$

....

(1)

This picture shows a car.

3.62 m
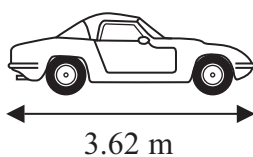
The tank of the oil tanker is longer than the car.

(b) Work out $9.05 – 3.62$

....

(1)

(Total for Question 1 is 2 marks)

2 50 chocolate biscuits completely fill a biscuit tin.

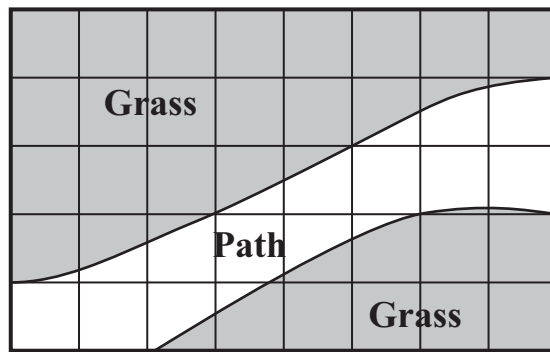There are 48 biscuits in the biscuit tin.
27 of these biscuits are eaten.
12 biscuits are put into the tin.

How many more biscuits are needed to fill the tin completely?

....

(Total for Question 2 is 3 marks)

3 Mrs Barlow has drawn a plan of her garden.

Each square on the plan represents 1m².

Estimate the area of the path.

.... m²

(Total for Question 3 is 2 marks)

4 Queen Victoria was queen for 23 226 days.

(a) Write down the value of the **3** in the number 23 226

....

(1)

Queen Victoria was 1.48 m tall.

(b) Write down the value of the **8** in the number 1.48

....

(1)

(Total for Question 4 is 2 marks)

5 Oliver wants to save some money.
His mother gives him an empty money box.

His mother puts 80p into his money box every Wednesday, Saturday and Sunday.
His father puts £2.50 into his money box every Tuesday and Thursday.
His auntie puts £1.20 into his money box every Friday.

At the end of 4 weeks, Oliver counts the money in his money box.

How much money is in his money box?

£ ....

(Total for Question 5 is 4 marks)

6 Susan weighs 11 stone 12 pounds.
1 stone = 14 pounds.

(a) How much, in pounds, does Susan weigh?

.... pounds

(2)

Susan has a cat.
Susan and her cat have a total weight of 12 stone 9 pounds.

(b) Work out the weight of her cat in pounds.

.... pounds

(2)

(Total for Question 6 is 4 marks)

7 A carton of milk is 18.5 centimetres tall.

(a) Change 18.5 centimetres to millimetres.

.... millimetres

(1)

A bag of potatoes weighs 2000 grams.

(b) Change 2000 grams to kilograms.

.... kilograms

(1)

(Total for Question 7 is 2 marks)

8 Bridling School has a concert to raise money for charity.
All the profit from the concert goes to charity.

The school only has to pay
£1300 to use the hall for the concert,
£580 for all the things they need for the concert.

The school sells 600 tickets for the concert.
The full price of a ticket is £6.50
The price of a student's ticket is £2.50

The school sells
480 of the tickets at the full price,
the rest of the tickets at the student price.
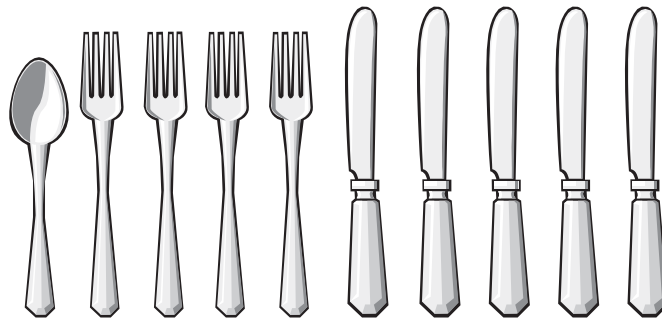
Work out how much money goes to charity.

£ ....

(Total for Question 8 is 6 marks)

9 There are only knives, forks and spoons in a cutlery box.

The knives, forks and spoons are shown below.

Muriel takes at random an item of cutlery from the box.

| impossible | unlikely | evens | likely | certain |

(a) Use a word from the list above that best describes the chance of each of the following events.
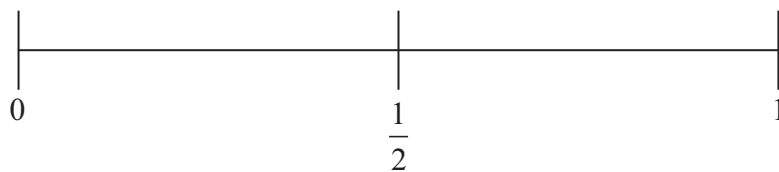
(i) Muriel takes a spoon.

....

(ii) Muriel takes a knife.

....

(2)

(b) On the probability scale below, mark with a cross (✗) the probability that Muriel takes a fork.

```
 ├──────────────┼──────────────┤
 0              1              1
                ─
                2
```
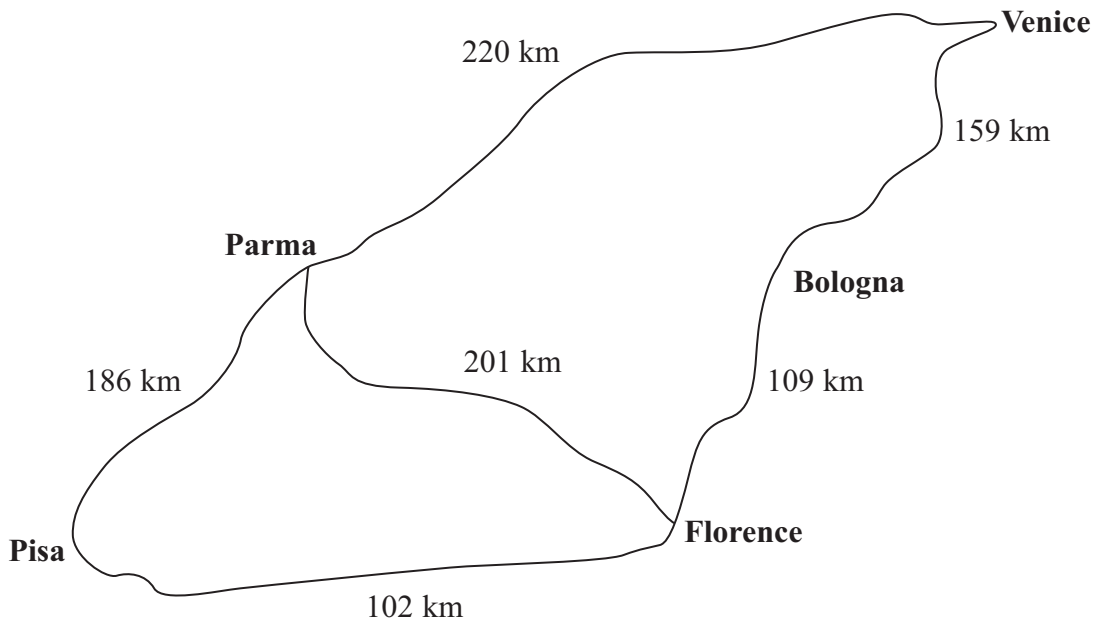
(1)

(Total for Question 9 is 3 marks)

10 Here is a map showing some towns in Italy.
It shows the distance by road between the towns.

The Jones family are on holiday in Italy.

On Monday, they drive from Venice to Bologna.
They then drive to Florence.

(a) How far do the Jones family drive from Venice to Florence?

.... km

(1)

On Tuesday, Mrs Jones wants to go from Florence to Pisa and then to Parma.
Mrs Jones knows it will be further than driving directly from Florence to Parma.

(b) How much further?

.... km

(2)

On Wednesday, the Jones family drive from Parma to Venice.
They stop every 50 km.

(c) How many times do they stop?
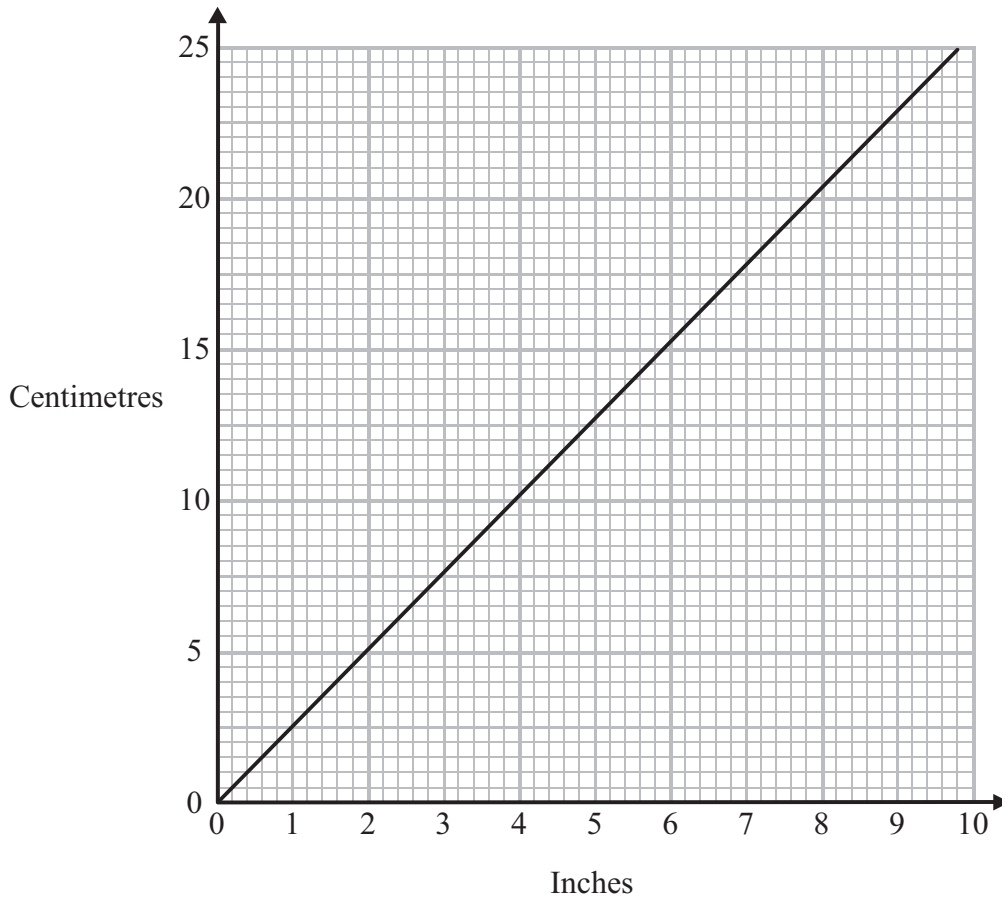
....

(2)

(Total for Question 10 is 5 marks)

11 Joe works in a DIY shop.
He uses this conversion graph to change between inches and centimetres.

(a) Change 4 inches to centimetres.

.... cm

(1)

(b) Change 16 cm to inches.

.... inches

(1)

(c) Change 60 cm to inches.

.... inches

(3)

(Total for Question 11 is 5 marks)

12 Here is Sinita's exam timetable for the first week of exams.
The timetable shows each exam subject and the length of time of the exam.

	Morning **Start time 09 30**	**Afternoon** **Start time 13 30**
Monday	Science 40 minutes	Maths 1 hour 30 minutes
Tuesday		English 1 hour 45 minutes
Wednesday	History 2 hours	
Thursday	Maths 1 hour 30 minutes	
Friday		PE 1 hour

(a) What time will Sinita's science exam finish?

....
(1)

On Friday, Sinita gets to school at 12 53

(b) How long does she have to wait to start her PE exam?

.... minutes
(1)

Rajesh has 500 minutes of exams in the first week.

*(c) Who has most time in exams in the first week, Rajesh or Sinita?

You must show all your working.

(4)

(Total for Question 12 is 6 marks)

13 Here is a diagram showing the position of the desks in a classroom.

Row A	A1	A2	A3	A4	A5	A6

Row B	B1	B2	B3	B4	B5	B6

Row C	C1	C2	C3	C4	C5	C6

Row D	D1	D2	D3	D4	D5	D6

There are 24 desks in the classroom.
On each desk there is the letter of the row and a number.

Before the lesson each student takes at random a card.
Each card has the letter of the row and the number of the desk the student must sit at.

Graham is the first student to take a card.

(a) Write down the probability that Graham will sit at desk A1.

....

(1)

(b) Write down the probability that Graham will sit in row D.

....

(1)

(c) Write down the probability that Graham will sit at a desk with an odd number in row B.

....

(1)

(Total for Question 13 is 3 marks)

14 Anne owns a taxi company.

Anne uses this formula to work out the total cost, in pounds, of each taxi journey.

| total cost = £1.50 × number of miles + £1.20 |

Bob goes 2 miles in one of Anne's taxis.

(a) Work out the total cost.

£ ....

(2)

John also owns a taxi company.

John uses this formula to work out the total cost, in pounds, of each taxi journey.

| total cost = £1.80 × number of miles + 50p |

Sharita used one of John's taxis for a journey.
The total cost was £9.50

(b) How many miles was Sharita's journey?

.... miles

(3)

(Total for Question 14 is 5 marks)
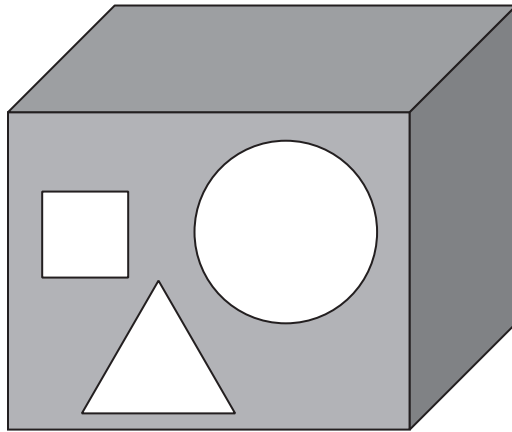
15 Stuart is making a child's toy.

Diagram **NOT** accurately drawn

The toy has three holes in it, a square, a circle and an equilateral triangle.

Stuart wants to make an accurate drawing of the front of the toy.

The square has a side length of 3 cm.
The circle has a radius of 4 cm.
The equilateral triangle has a side length of 5 cm.

One side of the square has been drawn.
The centre of the circle has been labelled with a cross (×).
The base of the equilateral triangle has been drawn.

On the next page, complete accurately the drawing of the front of the toy.

×

_____
square

_____
triangle

(Total for Question 15 is 5 marks)

16 A shop makes 1200 doughnuts every day.

The shop packs the doughnuts in boxes.
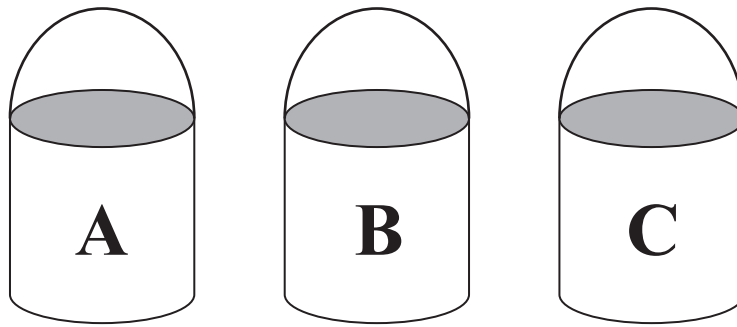They pack 6 doughnuts in each box.

The shop sold

  184 boxes of doughnuts on Monday,
  195 boxes of doughnuts on Tuesday,
  171 boxes of doughnuts on Wednesday.

Work out the total number of doughnuts the shop did **not** sell on these days.

....

(Total for Question 16 is 4 marks)

*17 Jason is collecting rainwater in buckets.

Buckets A, B and C are the same size.

Bucket A is $\dfrac{2}{3}$ full.

Bucket B is $\dfrac{3}{4}$ full.

Bucket C is $\dfrac{5}{6}$ full.

Is there enough rainwater in bucket C to pour into bucket A and B to fill them completely?
You must show all your working.

(Total for Question 17 is 4 marks)

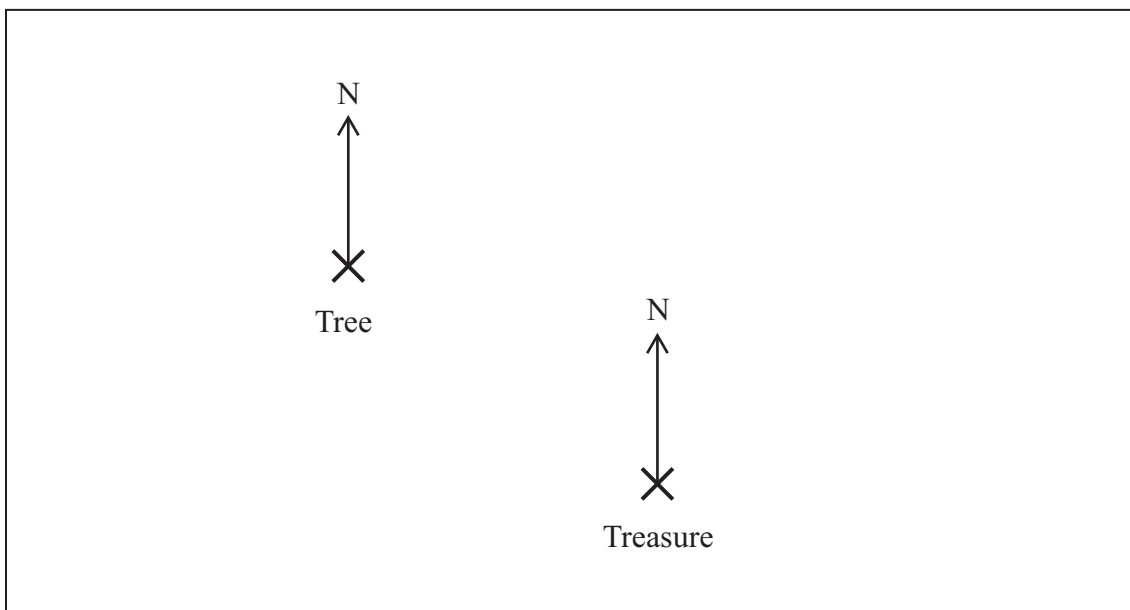**18** Last week James worked $37\frac{3}{4}$ hours.

His total pay was £484.71

Work out how much James was paid for each hour he worked.

£ ....

(Total for Question 18 is 2 marks)

19 Mrs Rice draws a map for a treasure hunt.

N
↑
✕
Tree

N
↑
✕
Treasure

Scale: 1 cm represents 1.5 m

(a) Measure the bearing of the treasure from the tree.

.... °

(1)

(b) Work out the real distance of the treasure from the tree.
Use the scale: 1 cm represents 1.5 m
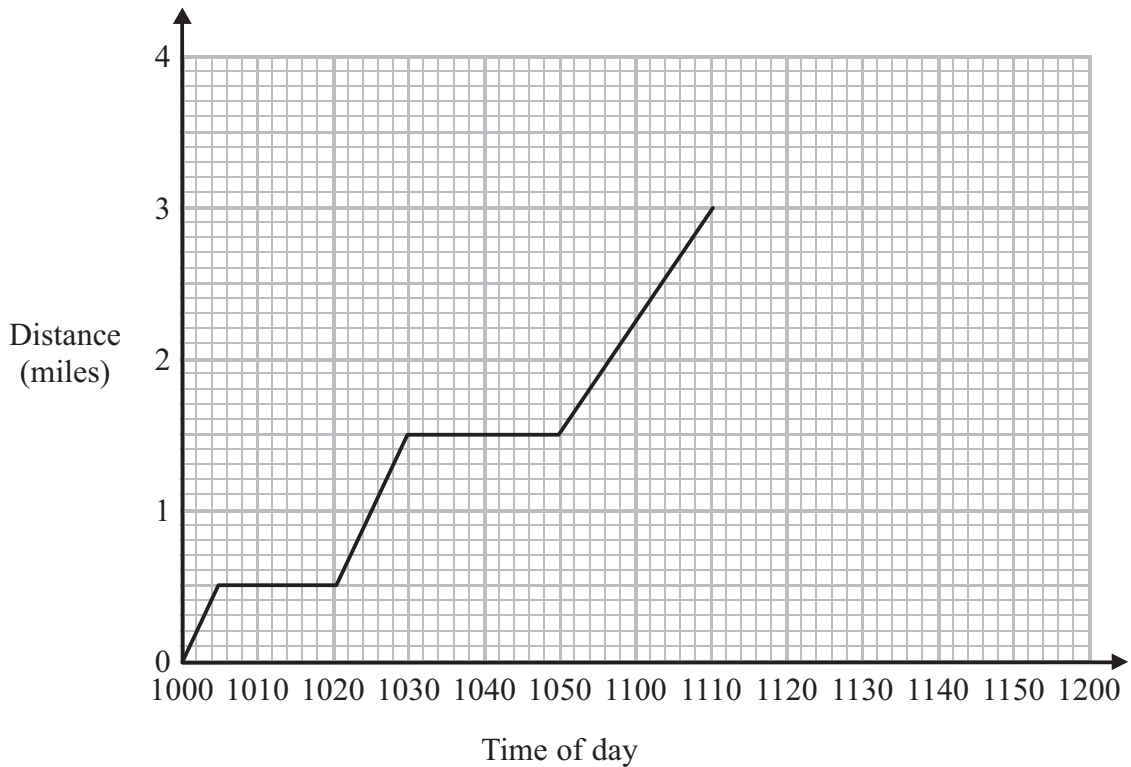
.... m

(2)

(Total for Question 19 is 3 marks)

20 The Cooper family go to a Safari park by car.

Here is a travel graph for the first 3 miles of their drive through the Safari park.

Distance (miles) vs Time of day

(a) What time did the Cooper family start their drive through the Safari park?

....
(1)

The first time they stopped they watched the lions.

(b) How long did they watch the lions for?

.... minutes
(1)

The second time they stopped they watched the monkeys.

(c) Find the total distance they drove through the Safari park to the second time they stopped.

.... miles
(1)

The Cooper family then drove to see the elephants.

They stopped to watch the elephants at 1110
They watched the elephants for 10 minutes.

The family then drove to the end of the Safari park.
They got to the end of the Safari park at 1140

The family drove a total distance of 4 miles through the Safari park.

(d) Complete the travel graph.

(2)

(Total for Question 20 is 5 marks)

Turn over ▶

21 Tia works at a kennels for dogs.

She has 4 types of dog food to feed the dogs.
She takes, at random, a tin of dog food.

The table below shows the probabilities that Tia will take a tin of lamb dog food or a tin of beef dog food or a tin of chicken dog food.

Dog Food	lamb	beef	chicken	turkey
Probability	0.35	0.26	0.07	

(a) Work out the probability that Tia will take a tin of turkey dog food.

....

(2)

(b) Work out the probability that Tia will take a tin of chicken dog food or a tin of lamb dog food.

....

(2)

Tia has 500 tins of dog food.

(c) Work out the number of tins of lamb dog food she has.

....

(2)

(Total for Question 21 is 6 marks)

*22 When you know the length of an adult's foot (*i*) in inches, you can use the formula

$$S = 3i - 25$$

to calculate their UK shoe size (*S*).

When you know an adult's UK shoe size (*S*), you can use the formula

$$E = S + 33$$

to calculate their European shoe size (*E*).

Tamsin is buying some shoes as a present for her friend Jane.

Jane is an adult with a foot length of 11 inches.

Tamsin orders some shoes.
The shoes are European size 38

Will the shoes fit Jane?
You must show all your working.

(Total for Question 22 is 3 marks)

Turn over ▶
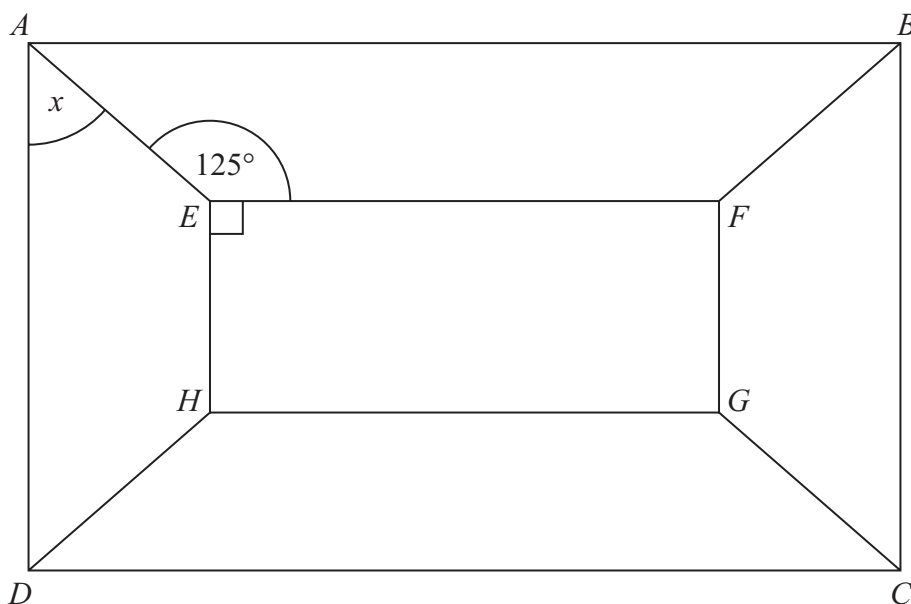
*23 Here is a picture frame.

Diagram **NOT** accurately drawn

ABCD and *EFGH* are rectangles.
AB is parallel to *EF*.

Work out the size of angle *x*.
You must give reasons for your answer.

(Total for Question 23 is 3 marks)

24 Jennifer wins £4560

She shares the money between a charity, herself and her son in the ratio 2 : 7 : 3
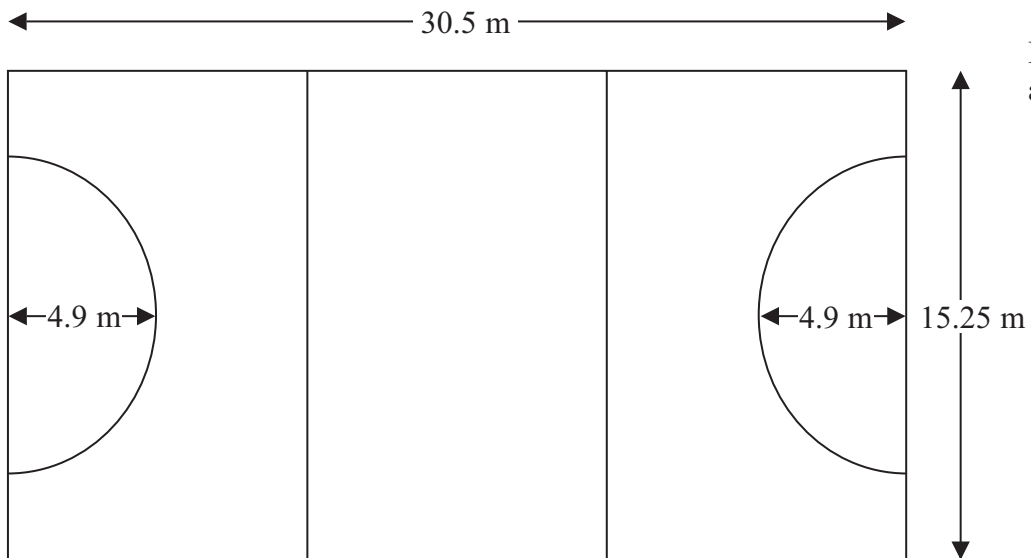
Work out how much money Jennifer gives to the charity.

£ ....

(Total for Question 24 is 3 marks)

25 The diagram shows the lines of a netball court.

Diagram **NOT** accurately drawn

The court is made from three rectangles and two semi-circles.

All the corners are right angles.

Mr Handy is painting the lines for the netball court on the floor of a school sports hall.

Work out the total length of the lines of the netball court.
Give your answer correct to the nearest metre.

.... m

(Total for Question 25 is 4 marks)

26 Stephen throws a ball vertically downwards.

The distance, x, which the ball travels, is given by the formula $x = \dfrac{v^2 - u^2}{19.6}$

$v = 14.3$
$u = 6.2$

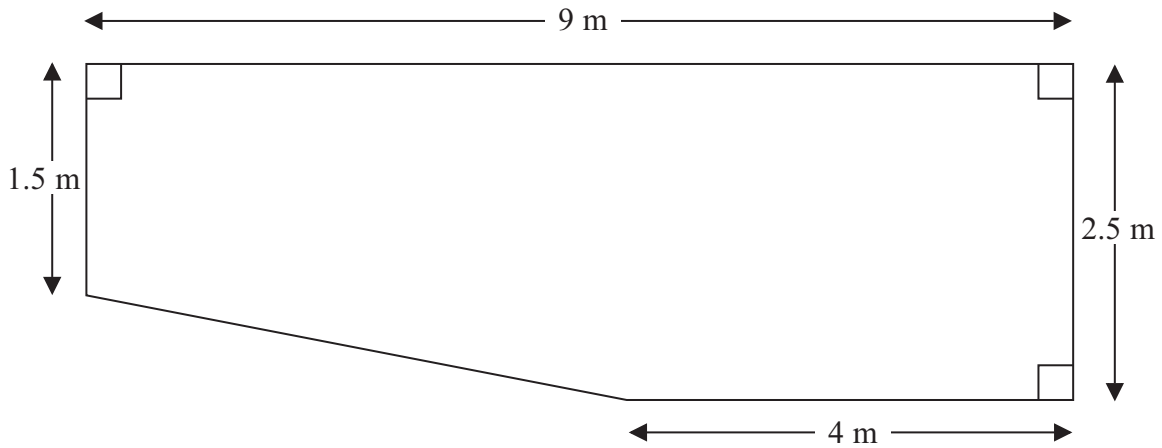Work out the value of x.
Give your answer correct to 1 decimal place.

$x = $ ....

(Total for Question 26 is 2 marks)

27 The diagram shows the cross-section of a swimming pool.

Diagram **NOT** accurately drawn

The pool is a prism.
The width of the pool is 5 m.

Calculate the volume of water needed to fill the swimming pool.

.... m³

(Total for Question 27 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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