**Pearson
Edexcel GCSE**

Centre Number

Candidate Number

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

Foundation Tier

| Friday 7 November 2014 – 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 ▶

PEARSON

Area of trapezium = $\frac{1}{2}(a + b)h$
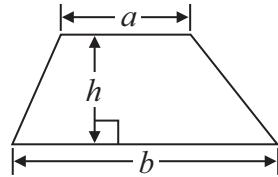
Volume of prism = area of cross section × length

P43388A0224
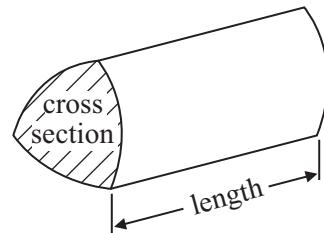
Answer ALL questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1   The distance from Manchester to Dubai is 5649 km.

   (a) Write down the value of the **6** in the number 5649

   ....
   (1)

   A plane leaves Manchester for Dubai at 1.15 pm.

   (b) Write 1.15 pm as a 24-hour clock time.

   ....
   (1)

   The Khalifa Tower in Dubai is the tallest tower in the world.
   The Tower is 0.829 km tall.

   (c) (i) What is the value of the **8** in 0.829?

   ....

   (ii) Change 0.829 km to metres.

   .... m
   **(2)**

   (Total for Question 1 is 4 marks)

2 There are 30 pens in a box in a school office.

Mr Simms takes 23 of the pens.
A secretary puts 18 more pens into the box.

Miss Clarke also puts some pens into the box.
There are now 40 pens in the box.
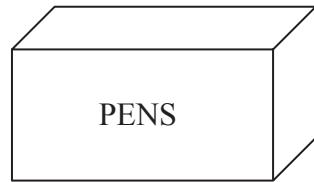
PENS

(a) How many pens did Miss Clarke put into the box?

....

(3)

The table shows the number of pens sold to students each day for two weeks.

	Mon	Tue	Wed	Thu	Fri
Week 1	12	11	15	10	8
Week 2	15	20	18	12	14

More pens were sold in Week 2 than in Week 1

(b) How many more pens?

....

(3)

(Total for Question 2 is 6 marks)

3 Gareth has some black pens, some red pens and some green pens.
He also has some yellow crayons, some orange crayons and some white crayons.

Gareth is going to choose one pen and one crayon.

Write down all the possible colour combinations Gareth can choose.

....

....

....

....

....

(Total for Question 3 is 2 marks)

4 A pile of sand has a weight of 65 kg.
Some of the sand is put into a small sack.
The rest of the sand is put into a large sack.

The sand in the large sack weighs 15 kg more than the sand in the small sack.

What is the weight of the sand in the small sack?

.... kg

(Total for Question 4 is 2 marks)

5 Mary works in a maternity unit.
She weighs the babies.

The table shows some weights in both pounds and kilograms.

pounds	4.4	6.6	8.8	11	13.2	15.4
kilograms	2	3	4	5	6	7

(a) Use this table to draw a conversion graph to change between pounds and kilograms.

Kilograms
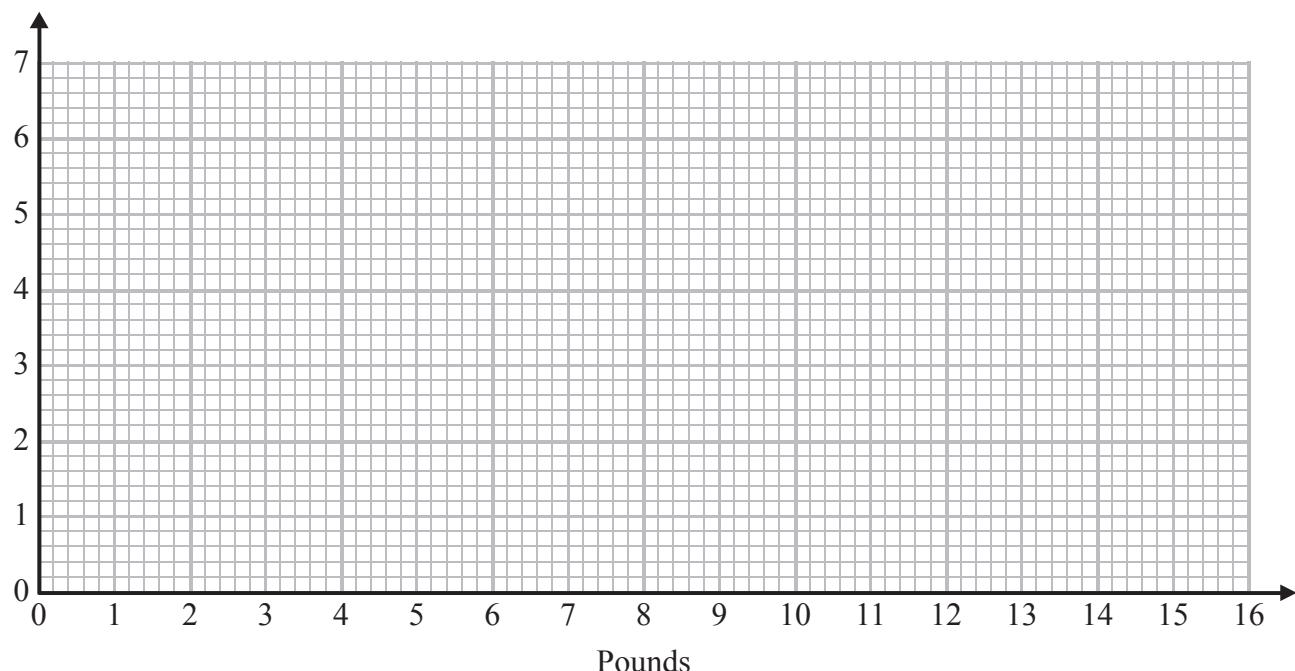
Pounds

(2)

(b) Change 10 pounds to kilograms.

.... kilograms

(1)

(c) Change 6.5 kilograms to pounds.

.... pounds

(1)

(Total for Question 5 is 4 marks)

**6** Sally makes a fair 8-sided spinner for a game.
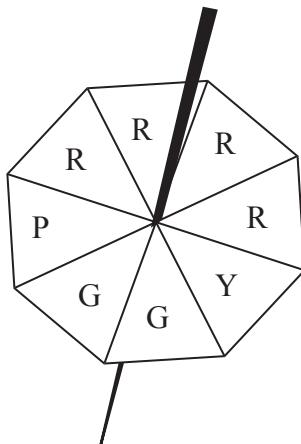
Diagram **NOT** accurately drawn

Sally is going to spin the spinner once.
The spinner will land on one of the letters shown in the diagram.

| impossible | unlikely | evens | likely | certain |

(a) From the list above, write down the word that best describes the likelihood

   (i) that the spinner will land on the letter Y

   ....

   (ii) that the spinner will land on the letter R

   ....

   (iii) that the spinner will land on the letter T

   ....

   (3)

Sally makes a different fair 8-sided spinner.
The letters A, B, C and D will be on the spinner.

The probability that the spinner will land on A is
twice the probability that the spinner will land on B.

The probability that the spinner will land on C
is the same as the probability that the spinner will land on D.

(b) Use this information to complete the spinner.

   (2)
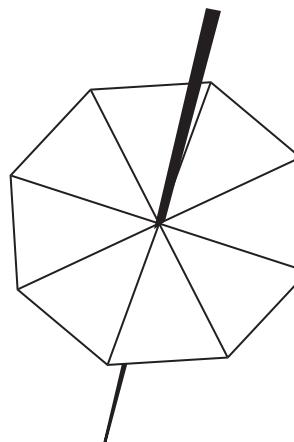
(Total for Question 6 is 5 marks)

7 The table shows the cost of posting some large letters.

Weight range	Cost
0 – 100 g	90p
101 g – 250 g	£1.20
251 g – 500 g	£1.65
501 g – 750 g	£2.30

18 large letters each weigh 50 g.

(a) What is the total cost of posting these 18 letters?

£ ....
(2)

Derek posts 9 large letters.
Each letter weighs 300 g.
Derek pays with a £20 note.

(b) How much change should Derek get?

£ ....
(3)

Fiona has some leaflets to post.

She can post them as 16 large letters that each weigh 200 g
or
she can post them as 8 large letters that each weigh 400 g.

*(c) Which is the cheaper way Fiona can post the leaflets?
You must show your working.

(3)

(Total for Question 7 is 8 marks)

Turn over ▶

8 The diagram shows a logo drawn on a centimetre grid.
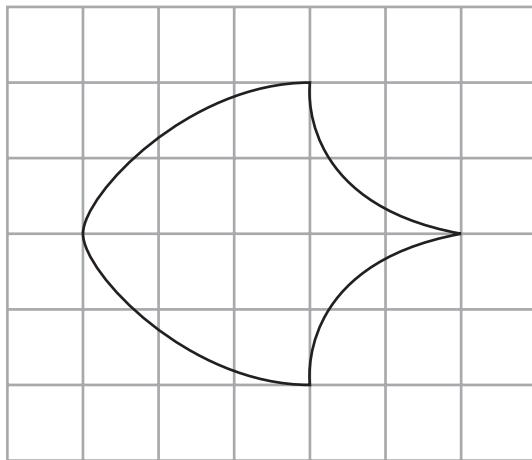
(a) Estimate the area of the logo.

.... cm^2

(2)

You can use this formula to calculate the cost, C pounds, of using the logo on a poster.

$$C = 3B$$

$B = 20$

(b) Work out the cost.

£ ....

(1)

(Total for Question 8 is 3 marks)

9 A teacher is organising a party for all the Y11 students.
240 students are going to the party.

Here are the costs for the party.

Hire of room	£980
Decorations	£120
DJ	£580
Meal	£8 per student or teacher

There will be 30 teachers at the party.
Each teacher will pay £20

The students will pay the rest of the total cost.
The teachers need to work out how much each student will have to pay.

Work out how much each student will have to pay.

£ ....

(Total for Question 9 is 6 marks)

Turn over ▶

10 Barry works for a restaurant in Spain.
He is paid to get people to go to the restaurant.

This rule is used to work out Barry's total pay, in euros (€).

Total pay = number of people who go to the restaurant × 1.20 + 50

One evening Barry gets 48 people to go to the restaurant.

(a) Work out his total pay.

€ ....
(2)

A different evening Barry's total pay was €94.40

(b) Work out how many people he got to go to the restaurant that evening.

....
(3)

(Total for Question 10 is 5 marks)

11 A bucket holds 2 gallons of water when it is full.

Diagram **NOT** accurately drawn
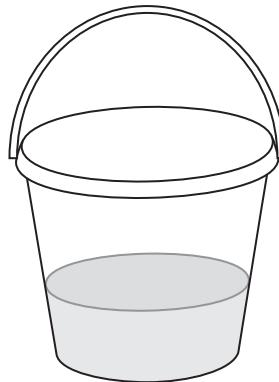
There are 3 litres of water in the bucket.

How many more litres of water are needed to fill the bucket completely?

Use 4.5 litres = 1 gallon

.... litres

(Total for Question 11 is 3 marks)

12 Nia buys x boxes of eggs.
There are 6 eggs in each box.

Nia buys a total of t eggs.

Write a formula for t in terms of x.

....

(Total for Question 12 is 2 marks)

13 Sameena and Molly both work in a cafe.

The table shows the times they each start work and finish work on Monday.

	Start	Finish
Sameena	8.15 am	1.10 pm
Molly	11.50 am	4.10 pm

*(a) Who works longer?

(4)

It took Sameena 40 minutes to get from home to the cafe on Monday.

(b) What time did she leave to get to work at 8.15 am?

....

(2)

David also works in the cafe.

Last week he worked $32\frac{1}{4}$ hours.

His total pay was £357.33

(c) Work out how much David was paid for each hour he worked.

£ ....

(2)

(Total for Question 13 is 8 marks)

14 The diagram shows the positions of two trees, *A* and *B*.

N

✕ *B*

A ✕
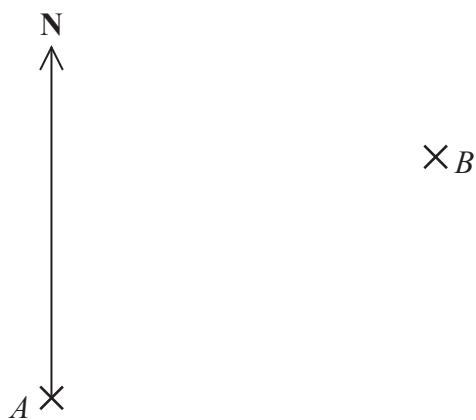
Scale: 1 cm represents 50 m.

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

.... °

(1)

Tree *C* is 200 m from *A* on a bearing of 120°

(b) On the diagram, mark *C* with a cross (✕).

Label the cross *C*.

(2)

(Total for Question 14 is 3 marks)

15 A chocolate box is in the shape of a cuboid.

Diagram **NOT** accurately drawn

Chocolates

6 cm

12 cm
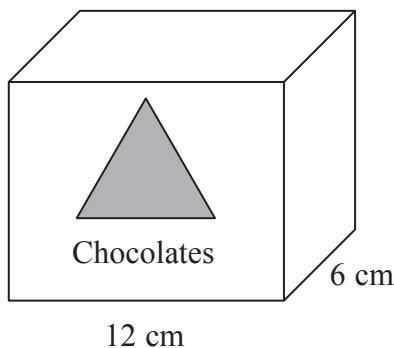
The box has a volume of 576 cm³

(a) Work out the height of the box.

.... cm

(2)

The triangle on the front of the box is an equilateral triangle of side 6 cm.

(b) Draw accurately an equilateral triangle of side 6 cm.

(2)

(Total for Question 15 is 4 marks)

*16 Soap powder is sold in three sizes of box.

Diagram **NOT**
accurately drawn

2 kg   5 kg   9 kg
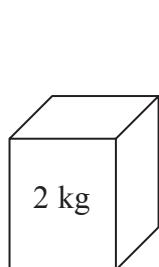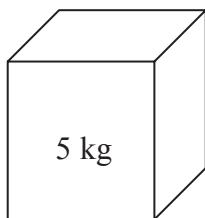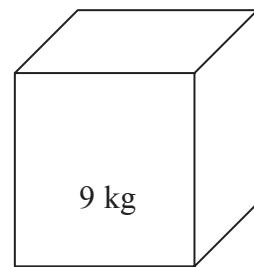
£1.90   £4.35   £8.45

A 2 kg box costs £1.90
A 5 kg box costs £4.35
A 9 kg box costs £8.45

Which size of box is the best value for money?
Explain your answer.
You must show all your working.

(Total for Question 16 is 4 marks)

Turn over ▶

17 Asif delivers parcels on his bike.
He starts from his home.

Here is a travel graph for the first 40 minutes of Asif's journey.

Kilometres
from home
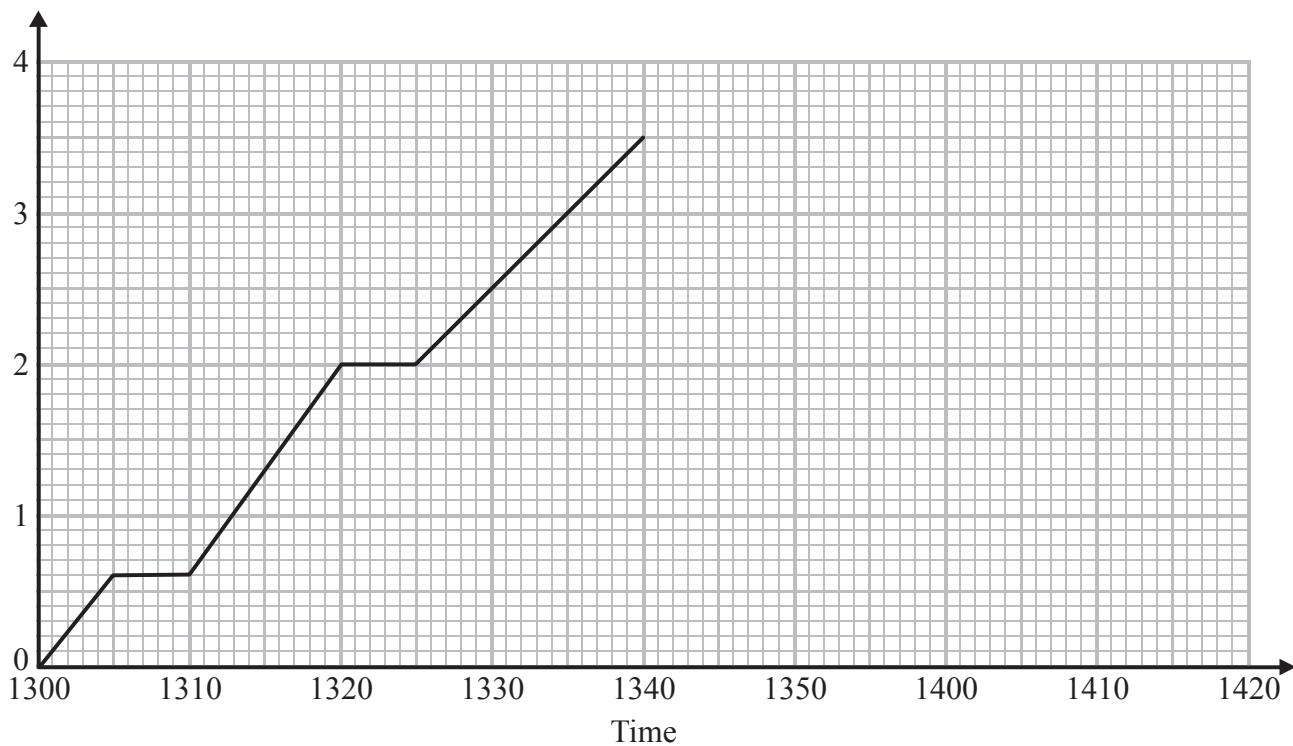
(a) What time did Asif start his journey?

....

(1)

Asif stops to deliver each parcel.

(b) How many minutes long was his first stop?

.... minutes

(1)

(c) What is the distance between the first stop and the second stop shown on the travel graph?

.... km

(2)

At 1340, Asif stops for 10 minutes to deliver his last parcel.
He then cycles back home at a steady speed.
Asif gets home at 1415

(d) Complete the travel graph.

(2)

(Total for Question 17 is 6 marks)

18 A small photograph has a length of 6 cm and a width of 5 cm.
The small photograph is enlarged to make a large photograph.

The large photograph has a length of 21 cm.

Diagram **NOT**
accurately drawn

5 cm
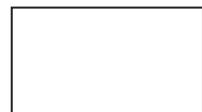
6 cm

Small photograph

21 cm

Large photograph

The two photographs are similar rectangles.

Work out the perimeter of the large photograph.

.... cm

(Total for Question 18 is 3 marks)

Turn over ▶

19 Bill has some models of meerkats.
He has models of meerkat children and models of meerkat adults.

Bill has twice as many models of meerkat children as models
of meerkat adults.
He has a total of 30 models.

Each model meerkat child has a value of £2.80
Bill's models have a total value of £98.00

Each model meerkat adult has the same value.

Work out the value of a model of a meerkat adult.

meerkat

£ ....

(Total for Question 19 is 4 marks)

*20 Here are the ingredients to make 12 cupcakes.

> For **12** cupcakes
>
> 200 g butter
> 200 g caster sugar
> 4 eggs
> 240 g flour

Martin is making cupcakes to sell at his school play.
Martin wants to make 1 cupcake for each adult and 2 cupcakes for each child.

There will be 90 children and 120 adults at the school play.

Martin can get these ingredients from the school kitchen.

> 5 kg butter
> 5 kg caster sugar
> 90 eggs
> 5 kg flour

Make a shopping list of any ingredients Martin still needs, showing the amount of each ingredient.
You must show all your working.

(Total for Question 20 is 5 marks)

Turn over ▶

21 The students in a class are asked how they got to school on Monday.
12 students used the bus, 7 students travelled by car and 8 students walked.

A student is chosen at random from the class.

(a) Write down the probability that this student travelled by car.

....

(2)

There are 18 boys in a different class.
A student is chosen at random from this class.
The probability that this student is a girl is 0.4

(b) Work out the total number of students in this class.

....

(3)

(Total for Question 21 is 5 marks)

22 The diagram shows a wire frame.
The diagram is a rectangle and two diagonals.

Diagram **NOT** accurately drawn

40 cm

55 cm
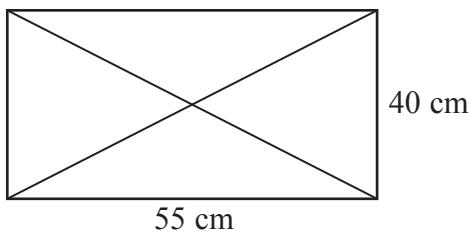
Work out the total length of wire used to make the frame.

.... cm

(Total for Question 22 is 5 marks)

*23 Here is a diagram of part of a wooden roof.
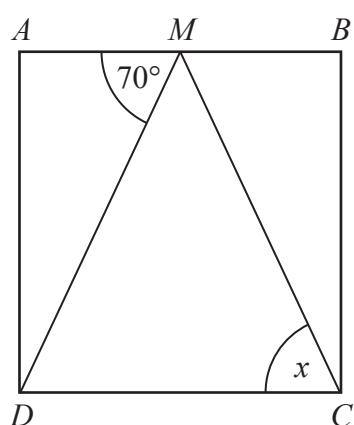
Diagram **NOT** accurately drawn

ABCD is a rectangle.
M is the midpoint of *AB*.
Angle *AMD* is 70°

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

(Total for Question 23 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

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