Write your name here

Surname		Other names

Edexcel Certificate

Edexcel International GCSE

Centre Number

Candidate Number

Mathematics A
Paper 2F

Foundation Tier

Tuesday 21 May 2013 – Morning	Paper Reference
Time: 2 hours	**4MA0/2F** **KMA0/2F**

You must have:
Ruler graduated in centimetres and millimetres, protractor, 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.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
  – *there may be more space than you need*.
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
  Anything you write on the formulae page will gain NO credit.

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.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

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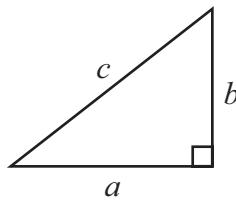
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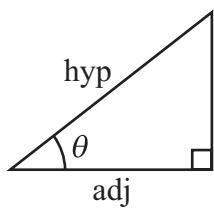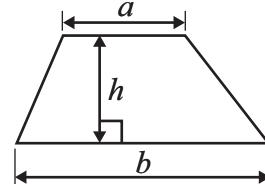
International GCSE MATHEMATICS

FORMULAE SHEET – FOUNDATION TIER

Pythagoras'
Theorem
$a^2 + b^2 = c^2$

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

adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ
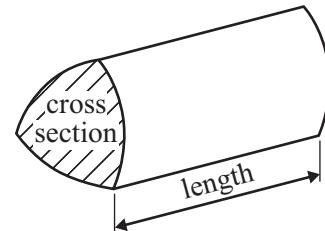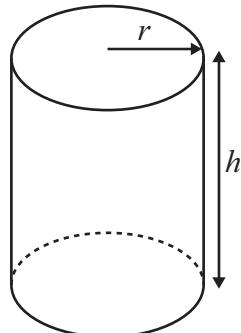
Volume of prism = area of cross section × length

or $\sin\theta = \dfrac{\text{opp}}{\text{hyp}}$

$\cos\theta = \dfrac{\text{adj}}{\text{hyp}}$

$\tan\theta = \dfrac{\text{opp}}{\text{adj}}$
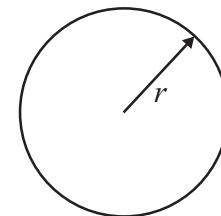
Circumference of circle = $2\pi r$

Area of circle = πr^2

Volume of cylinder = $\pi r^2 h$

Curved surface area
of cylinder = $2\pi rh$

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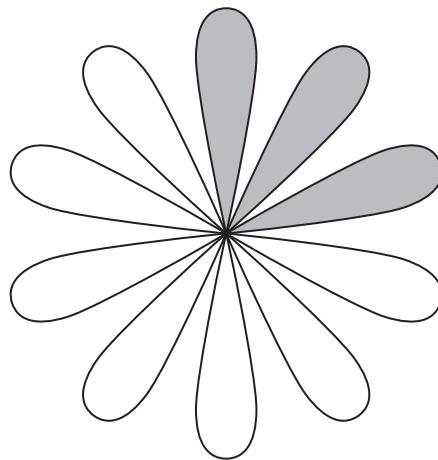
Answer ALL TWENTY THREE questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1   (a) (i) What percentage of this shape is shaded?


.... %
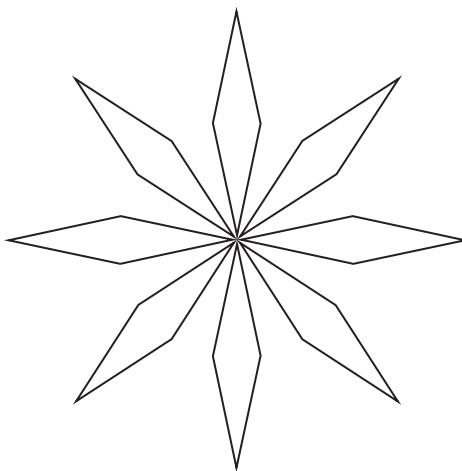
   (ii) What percentage of this shape is unshaded?

.... %

(2)

   (b) Shade $\dfrac{3}{4}$ of this shape.

(1)
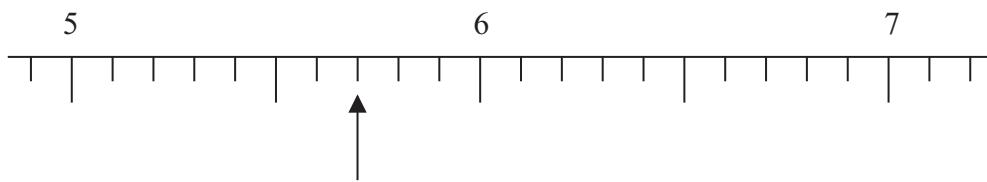
(Total for Question 1 is 3 marks)

2 (a)

5   6   7
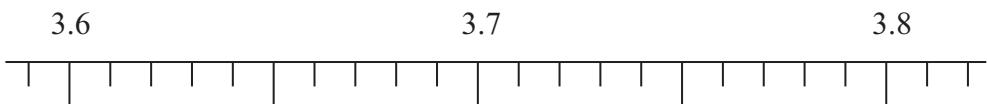
Write down the number marked with an arrow.

....
(1)

(b)

3.6   3.7   3.8

    (i)   Find the number 3.76 on the number line.
          Mark it with an arrow (↑)

    (ii) Round 3.76 to the nearest whole number.

....

    (iii) Write down the value of the 7 in the number 3.76

....
(3)

(c) Write down the number which is exactly halfway between 3.76 and 3.77

....
(1)

(Total for Question 2 is 5 marks)

3 On the probability scale, mark with a cross (×), the probability that

    (i)   you will have something to drink tomorrow.
          Label this cross **A**.
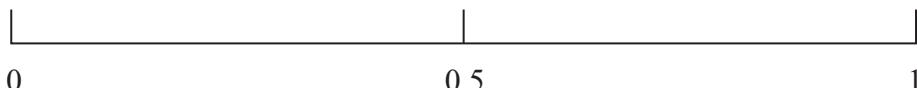
    (ii) a teacher chosen at random was born on a Monday.
          Label this cross **B**.

    (iii) a fair 6-sided dice will show an even number when thrown.
          Label this cross **C**.

0   0.5   1
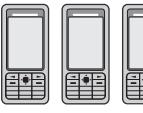
(Total for Question 3 is 3 marks)

4 The pictogram shows information about the number of mobile phones sold in a shop on each of five days.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

(a) On which day did the shop sell the greatest number of mobile phones?

....
(1)

The shop sold 24 mobile phones on Wednesday.

(b) (i) How many mobile phones sold does represent?

....

(ii) Find the number of mobile phones sold on Thursday.

....

(iii) Find the number of mobile phones sold on Friday.

....
(3)
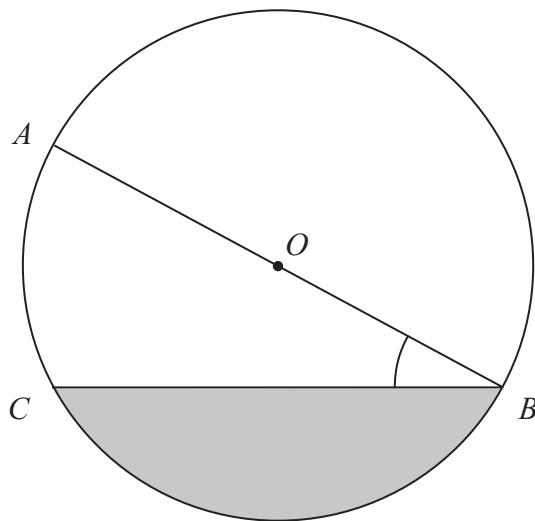
10 out of the 24 mobile phones sold on Wednesday were black.

(c) Write 10 out of 24 as a fraction.
Give your fraction in its simplest form.

....
(2)

(Total for Question 4 is 6 marks)

5

A, B and C are points on a circle, centre O.

(a) Measure the length of CB.

.... cm

(1)

(b) Measure the size of angle ABC.

°

....

(1)

(c) Write down the mathematical name for

(i) the line OA,

....

(ii) the shaded region.

....

(2)

(Total for Question 5 is 4 marks)
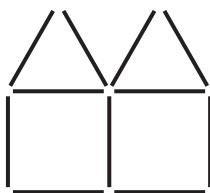
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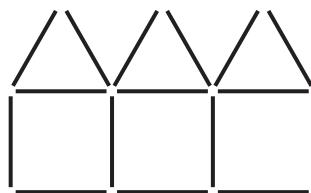
6 Here are some patterns made from sticks.

Pattern number 1   Pattern number 2   Pattern number 3

(a) In the space below, draw Pattern number 4

(1)

This rule can be used to work out the number of sticks in each pattern.

Multiply the Pattern number by 5 and then add 1

(b) Work out the number of sticks in Pattern number 6

....
(2)

(c) A pattern is made from 61 sticks.
Work out the Pattern number.

....
(2)

(Total for Question 6 is 5 marks)

7 The table shows midday temperatures in four cities on one day in winter.

City	Midday temperature (°C)
Paris	2
Cardiff	−5
London	−3
Edinburgh	−1

(a) Which city had the lowest midday temperature?

....

(1)

By midnight, the temperature in London had fallen by 5 °C.

(b) Work out the midnight temperature in London.

.......................°C

(2)

(Total for Question 7 is 3 marks)

8 Sophie has £25 to spend on plants.
Each plant costs £3.95
She buys as many plants as she can.

(a) How many plants does Sophie buy?

....

(2)

(b) How much change should Sophie receive from £25?

£.............................

(2)
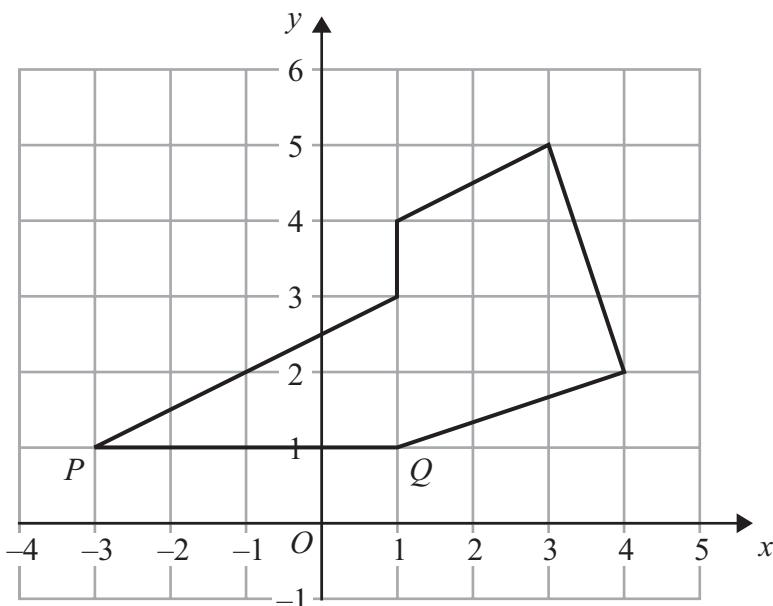
(Total for Question 8 is 4 marks)

9 The diagram shows a shape drawn on a centimetre grid.

(a) On the shape, mark with crosses (×) a pair of perpendicular lines.

(1)

(b) On the shape, mark an obtuse angle.
Label your angle A.

(1)

(c) Write down the coordinates of the point *P*.

(.............. , ...)

(1)

(d) Write down the equation of the line *PQ*.

....

(1)

(e) Find the area of the shape.
Give the units of your area.

....

(3)

(Total for Question 9 is 7 marks)

10 (a) Simplify

(i) $t + t + t$

....

(ii) $b \times 5 \times a$

....

(2)

(b) Solve

(i) $8x - 3 = 9$

$x = $ ....

(ii) $7y - 6 = 2y + 8$

Show clear algebraic working.

$y = $ ....

(5)

(c) Expand and simplify

$(x - 6)(x + 9)$

....

(2)

(Total for Question 10 is 9 marks)

11

| 1 euro = 1.40 Canadian dollars |

(a) Alain changes 450 euros into Canadian dollars.
   How many Canadian dollars should he receive?

.... Canadian dollars
(2)

(b) Isabella changes 840 Canadian dollars into euros.
   How many euros should she receive?

.... euros
(2)

| 1 euro = 100 cents |

(c) How many cents is 1 Canadian dollar worth?

.... cents
(2)

**(Total for Question 11 is 6 marks)**
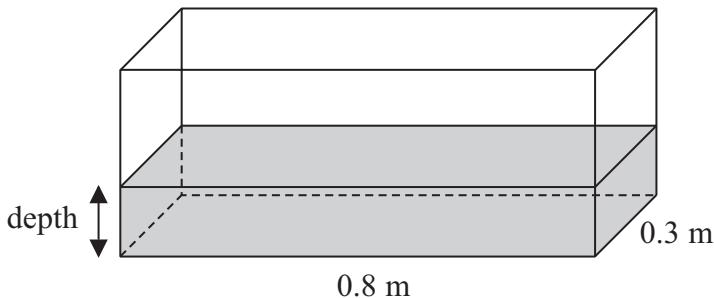
12

Diagram **NOT**
accurately drawn

depth

0.3 m

0.8 m

A fish tank is in the shape of a cuboid.
The length of the fish tank is 0.8 m and the width is 0.3 m.
The volume of water in the fish tank is 108 litres.

$1 \text{ m}^3 = 1000$ litres.
Work out the depth of the water in the fish tank.

.... m
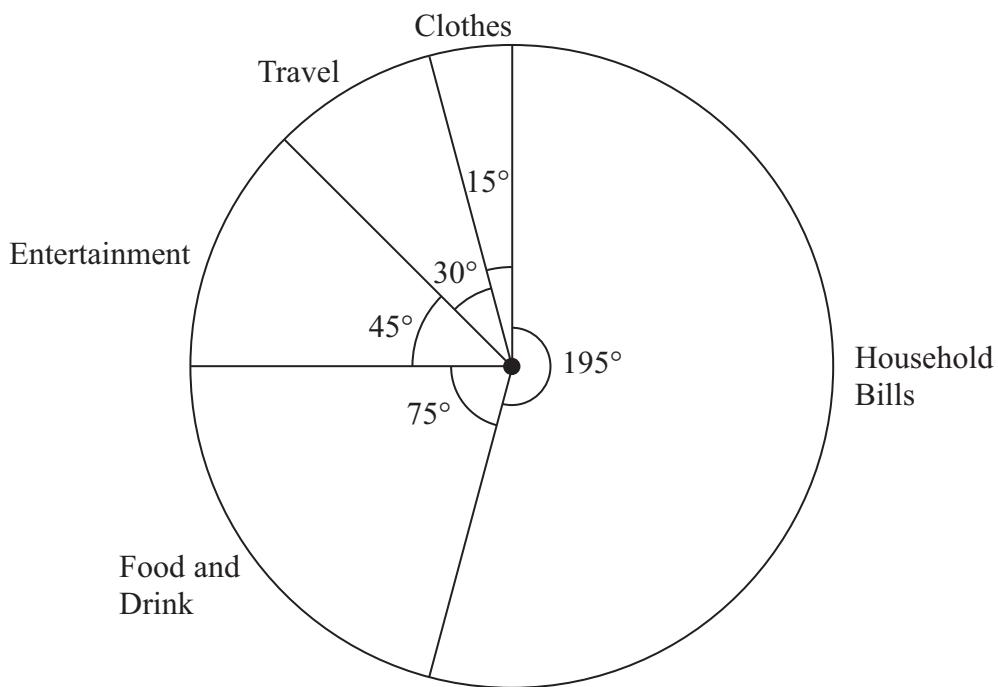
(Total for Question 12 is 3 marks)

13 The pie chart shows information about Andrew's spending last month.
The pie chart is accurately drawn.

(a) Andrew spent $80 on travel last month.
Work out the amount Andrew spent on household bills last month.

$ ....
(3)
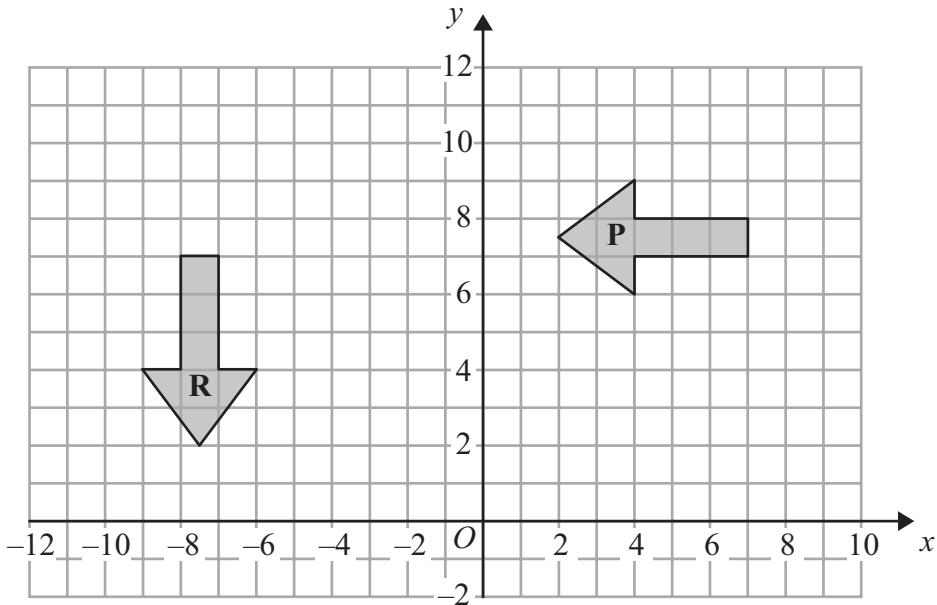
(b) A second pie chart is to be drawn for Cathy's spending.
Cathy spent a total of $800 last month.
She spent $120 on entertainment last month.

Calculate the size of the angle for entertainment in the second pie chart.

°
....
(2)

(Total for Question 13 is 5 marks)

14

(a) On the grid, reflect shape **P** in the *y*-axis.
   Label the new shape **Q**.

(2)

(b) Describe fully the single transformation that maps shape **P** onto shape **R**.

....

....

(3)

(Total for Question 14 is 5 marks)

15 Green paint can be made by mixing yellow paint and blue paint in the ratio 2 : 3
   Wendy makes 15 litres of green paint.

   Work out how many litres of blue paint Wendy uses.

.... litres

(Total for Question 15 is 2 marks)

16 A box contains four different kinds of chocolates.
Debbie takes at random a chocolate from the box.
The table shows the probability of Debbie taking an Orange or a Coffee or a Caramel chocolate.

Chocolate	Probability
Orange	0.15
Coffee	0.40
Caramel	0.35
Strawberry	

(a) Work out the probability that Debbie takes a Strawberry chocolate.

....
(2)

(b) Work out the probability that Debbie takes an Orange chocolate or a Coffee chocolate.

....
(2)

(Total for Question 16 is 4 marks)

17 Yoko flew on a plane from Tokyo to Sydney.
The plane flew a distance of 7800 km.
The flight time was 9 hours 45 minutes.

Work out the average speed of the plane in kilometres per hour.

.... km/h

(Total for Question 17 is 3 marks)

18 (a) Show that $\dfrac{7}{8} - \dfrac{5}{6} = \dfrac{1}{24}$

(2)

(b) Show that $\dfrac{5}{8} \div \dfrac{7}{12} = 1\dfrac{1}{14}$

(2)

(Total for Question 18 is 4 marks)

19 The table shows information about the amount of money, in dollars, spent in a shop in one day by 80 people.

Money spent (x dollars)	Frequency
$0 < x \leqslant 20$	24
$20 < x \leqslant 40$	20
$40 < x \leqslant 60$	9
$60 < x \leqslant 80$	12
$80 < x \leqslant 100$	15
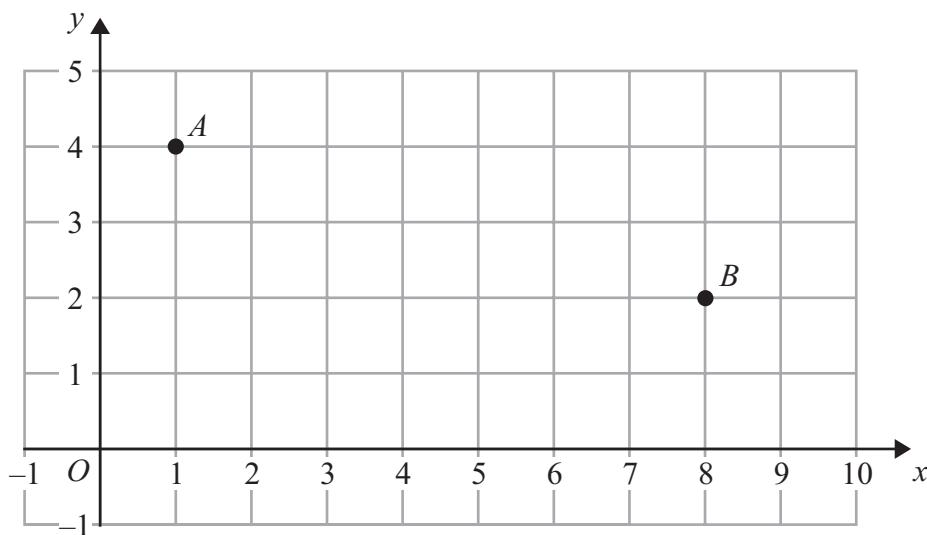
Work out an estimate for the total amount of money spent in the shop that day.

.... dollars

(Total for Question 19 is 3 marks)

20 Two points, *A* and *B*, are plotted on a centimetre grid.
  A has coordinates (1, 4) and *B* has coordinates (8, 2).

(a) Work out the coordinates of the midpoint of *AB*.

(.................... , ...)

(2)

(b) Use Pythagoras' Theorem to work out the length of *AB*.
  Give your answer correct to 3 significant figures.

.... cm

(4)

(Total for Question 20 is 6 marks)

21 Express 204 as a product of its prime factors.

....

(Total for Question 21 is 3 marks)

22 The scale of a map is 1 : 25 000
On the map, the distance between two railway stations is 22 cm.

Work out the real distance between the two railway stations.
Give your answer in kilometres.

.... km

(Total for Question 22 is 3 marks)

23 (a) Solve the inequalities $\quad -6 \leqslant 3x < 9$

....
(2)

(b) n is an integer.

Write down all the values of n which satisfy $\quad -6 \leqslant 3n < 9$

....
(2)

(Total for Question 23 is 4 marks)

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