Write your name here

Surname		Other names

Edexcel International GCSE

Centre Number

Candidate Number

Mathematics A
Paper 2FR

Foundation Tier

Tuesday 21 May 2013 – Morning
Time: 2 hours

Paper Reference
4MA0/2FR

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.
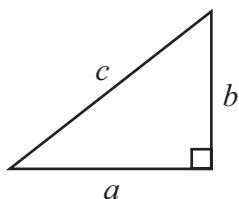
Turn over ▶

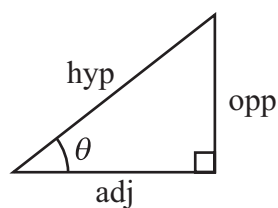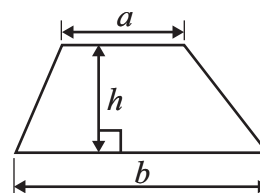P 4 2 9 3 1 A 0 1 2 0

PEARSON

International GCSE MATHEMATICS

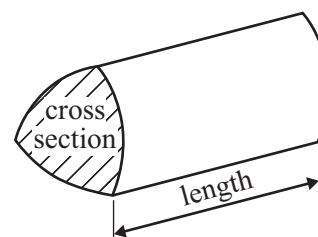## FORMULAE SHEET – FOUNDATION TIER

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

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

adj = hyp $\times$ cos θ
opp = hyp $\times$ sin θ
opp = adj $\times$ tan θ

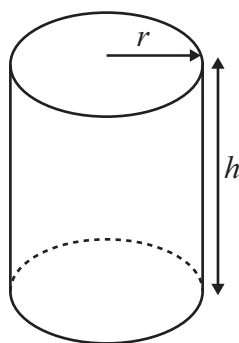Volume of prism = area of cross section $\times$ length

or

$$\sin\theta = \frac{\text{opp}}{\text{hyp}}$$

$$\cos\theta = \frac{\text{adj}}{\text{hyp}}$$
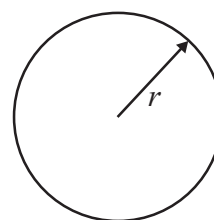
$$\tan\theta = \frac{\text{opp}}{\text{adj}}$$

Circumference of circle = $2\pi r$

Area of circle = πr^2

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

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

P4 2931 A0 220

Answer ALL TWENTY TWO questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1 (a) Write in figures the number **nine thousand and twelve**.

....
(1)

(b) Here is a list of numbers.

2091   1209   2901   1902   2109

(i) Write the numbers in order of size.
Start with the smallest number.

....

(ii) Write the number 2091 in words.

....

(iii) From the list, write down the even number.

....

(iv) Use two numbers from the list to make this calculation correct.

.... + ... = 4200

(v) Work out the difference between 1902 and 1209

....
(5)

(Total for Question 1 is 6 marks)

2 The pictogram shows information about the number of letters Sahira received last month from each of five countries.

Cyprus	✉ ✉ ✉
Egypt	✉ ✉ ✉ ✉ ✉
China	✉ ✉ ✉ ✉ ✉
Kenya	✉ ◁
Spain	✉ ✉ ✉ ✉ ▯
Sri Lanka	

✉ represents 4 letters.

(a) Write down the number of letters Sahira received from Cyprus.

....
(1)

(b) Write down the number of letters she received from Kenya.

....
(1)

(c) From which country did she receive 19 letters?

....
(1)

(d) Sahira received 9 letters from Sri Lanka.

Show this information on the pictogram.

(1)

(e) Haroon sent $\frac{3}{5}$ of the 20 letters Sahira received from China.

Work out $\frac{3}{5}$ of 20

....
(2)

(Total for Question 2 is 6 marks)

3
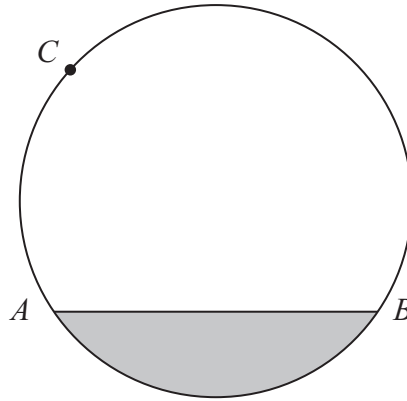
A, *B* and *C* are points on a circle.

(a) Write down the mathematical name for

   (i) the line *AB*,

   ....

   (ii) the shaded region.

   ....

   (2)

(b) At the point *C*, draw a tangent to the circle.

   (1)

(Total for Question 3 is 3 marks)

Do NOT write in this space.

4 (a) Work out the number which is exactly halfway between 8.3 and 8.4

....
(1)

(b)

8.3   8.4
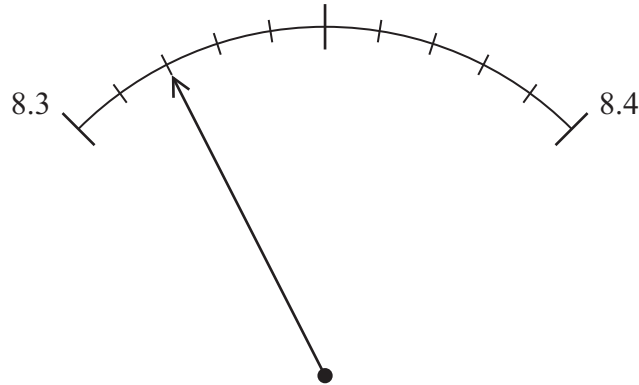
What is the reading on the scale?

....
(1)

(c)

8.3   8.4
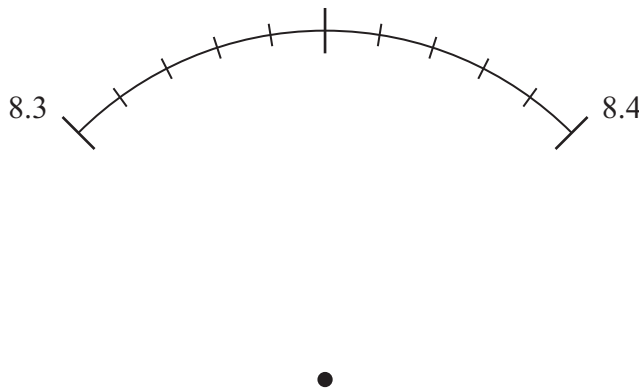
(i) On the scale, mark the number 8.367
Give your answer as accurately as you can.

(ii) Write down the value of the 6 in the number 8.367

....

(iii) Round 8.367 to the nearest whole number.

....
(3)

(Total for Question 4 is 5 marks)

6

5 Here are the first five terms of a number sequence.

   2   6   18   54   162

   (a) Work out the next term of the sequence.

   ....
   (1)

   (b) Explain how you worked out your answer.

   ....
   (1)

   (Total for Question 5 is 2 marks)

6 Here is a quadrilateral.
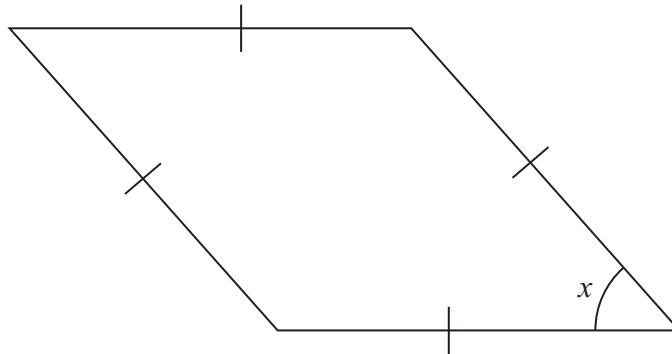
   (a) What is the mathematical name for this type of quadrilateral?

   ....
   (1)

   (b) (i) Measure the size of angle *x*.

   .... °

   (ii) What type of angle is angle *x*?

   ....
   (2)

   (c) Find, by measuring, the perimeter of the quadrilateral.

   .... cm
   (2)

   (Total for Question 6 is 5 marks)

7 (a) 22% of the population of Kenya belong to the Kikuyu tribe.

What percentage of the population does not belong to the Kikuyu tribe?

.... %

(1)

(b) The population of Kenya is 41 million.

Work out 22% of 41 million.
Give your answer correct to the nearest million.

.... million

(2)

(c) 6% of the population of Kenya belong to the Meru tribe.

Write 6% as a decimal.

....

(1)

(Total for Question 7 is 4 marks)

8 (a) Solve $x - 4 = 3$

$x =$ ....

(1)

(b) Solve $3y + 7 = 1$

$y =$ ....

(2)

(Total for Question 8 is 3 marks)

9 Here are ten counters.
Each counter has a number on it.

(3) (3) (3) (3) (3)

(3) (4) (4) (4) (7)
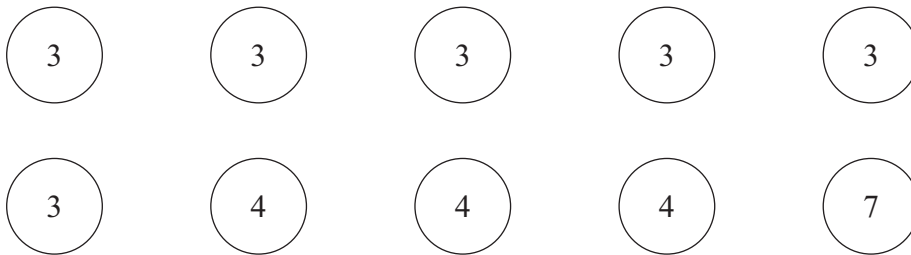
Fern puts the ten counters in a bag.
She takes at random a counter from the bag.

(a) Find the probability that the number on the counter is 7

....
(1)

(b) Find the probability that the number on the counter is less than 8

....
(1)

(c) Find the probability that the number on the counter is an odd number.

....
(2)

(d) Find the probability that the number on the counter is 3 or 4

....
(2)

(Total for Question 9 is 6 marks)

Do NOT write in this space.

10 The diagram shows three points, *A*, *B* and *C*, on a centimetre grid.
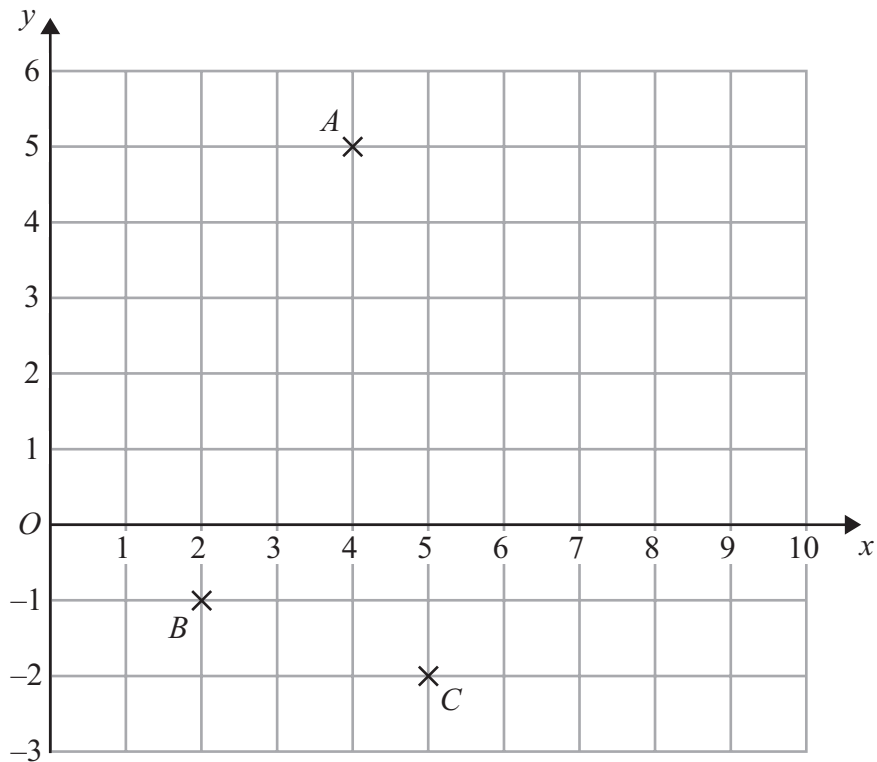
(a) Write down the coordinates of

   (i) *A*,

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

   (ii) *B*.

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

(b) (i) On the diagram, mark with a cross (✗) the point *D* so that *ABCD* is a rectangle. Label your point *D*.

   (ii) On the diagram, draw rectangle *ABCD*.
(2)

(c) Write down the order of rotational symmetry of rectangle *ABCD*.

....
(1)

(d) Find the coordinates of the midpoint of *AB*.

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

(Total for Question 10 is 7 marks)

11 The length of a rectangle is 12 cm.
The width of the rectangle is 7 cm.

Work out the area of the rectangle.

.... cm^2

(Total for Question 11 is 2 marks)

12 (a) Find $\sqrt{729}$

....
(1)

(b) (i) Find the cube of 2.8
Write down all the figures on your calculator display.

....

(ii) Write your answer to part (b)(i) correct to 2 decimal places.

....
(2)

(c) (i) Use your calculator to work out the value of $\dfrac{83}{0.7^2}$

Give your answer as a decimal.
Write down all the figures on your calculator display.

....

(ii) Write your answer to part (c)(i) correct to 2 significant figures.

....
(3)

(Total for Question 12 is 6 marks)

Do NOT write in this space.

13
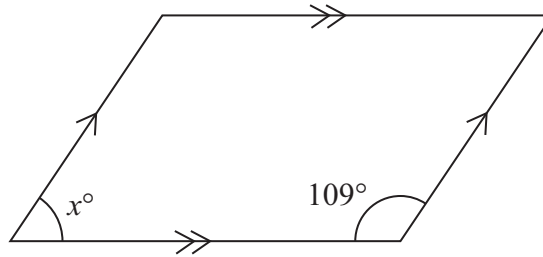
Diagram **NOT** accurately drawn

The diagram shows a parallelogram.

Work out the value of x.

$x =$ ....

(Total for Question 13 is 3 marks)

14 (a) $P = 6c + 5t$

Work out the value of P when $c = 2$ and $t = 3$

$P =$ ....
(2)

(b) $A = n(y + 2)$

Work out the value of A when $n = 6$ and $y = -5$

$A =$ ....
(2)

(Total for Question 14 is 4 marks)

15 There are 20 students in a class.
12 of the students are girls.

(a) Write 12 out of 20 as a fraction.
Give your fraction in its simplest form.

....
(2)

(b) Find the ratio of the number of girls to the number of boys.
Give your ratio in the form n : 1

.... : 1
(2)

(Total for Question 15 is 4 marks)

16
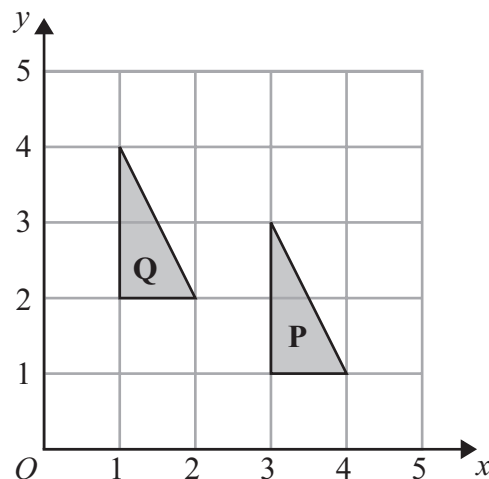
Describe fully the single transformation which maps triangle **P** onto triangle **Q**.

....

....

(Total for Question 16 is 2 marks)

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

17 The table shows information about the number of letters in the first name of each of 50 people.

Number of letters	Frequency
3	2
4	5
5	14
6	19
7	10

(a) Work out the median number of letters in the first names of the 50 people.

....

(2)

(b) (i) Work out the mean number of letters in the first names of the 50 people.

....

(ii) One more person joins the 50 people.
The mean number of letters in the first names of the 51 people is less than the mean number of letters in the first names of the 50 people.

Write down the greatest number of letters in the first name of the person who joins the group.

....

(4)

(Total for Question 17 is 6 marks)

18 A shop, *Furniture 4U*, had a sale.

(a) In the sale, normal prices were reduced by 15%.

   (i) The normal price of a table was $280

        Work out the sale price of the table.

$ ....

   (ii) The normal price of a chair was reduced in the sale by $24

        Work out the normal price of the chair.

$ ....

(6)

(b) Ruth, Suha and Yasmin went to the sale.
    The amounts of money spent by Ruth, Suha and Yasmin were in the ratios 2 : 3 : 7
    Ruth and Suha spent a total of $320 in the sale.

    Work out the amount of money Yasmin spent in the sale.

$ ....

(3)

(Total for Question 18 is 9 marks)
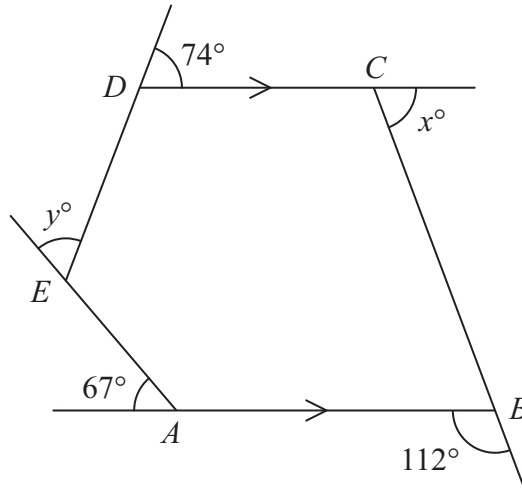
P 4 2 9 3 1 A 0 1 5 2 0

19

Diagram **NOT** accurately drawn

The diagram shows a pentagon *ABCDE*.
DC is parallel to *AB*.

The size of an exterior angle at *A* is 67°
The size of an exterior angle at *B* is 112°
The size of an exterior angle at *C* is $x°$
The size of an exterior angle at *D* is 74°
The size of an exterior angle at *E* is $y°$

(a) (i) Work out the value of *x*.

$x = $ ....

(ii) Work out the value of *y*.

$y = $ ....
(4)

(b) Work out the sum of the interior angles of the pentagon *ABCDE*.

..............................°
(2)

(Total for Question 19 is 6 marks)

20 (i) Solve the inequalities $3 \leqslant x + 4 < 7$

....

    (ii) *n* is an integer.

       Write down all the values of *n* which satisfy $3 \leqslant n + 4 < 7$

....

(Total for Question 20 is 4 marks)

21

Diagram **NOT** accurately drawn

3.8 cm

$x°$

5.2 cm
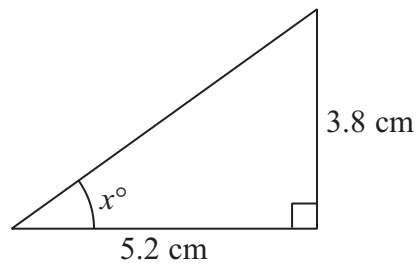
Calculate the value of *x*.
Give your answer correct to 1 decimal place.

$x =$ ....

(Total for Question 21 is 3 marks)

22
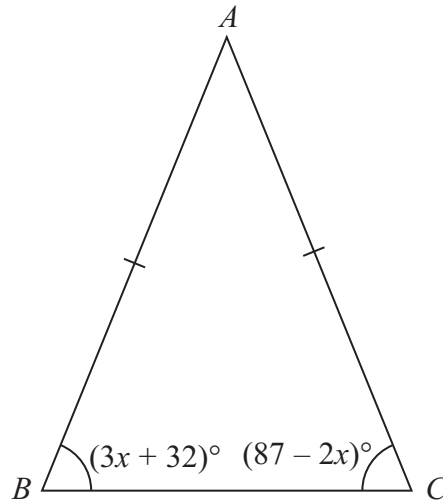
Diagram **NOT** accurately drawn

In the isosceles triangle ABC,
$AB = AC$
angle $B = (3x + 32)°$
angle $C = (87 - 2x)°$

Work out the value of x.
Show clear algebraic working.

$x = $ ....

(Total for Question 22 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

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