Write your name here

Surname	Other names

Edexcel
International GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics A

Paper 1FR

Foundation Tier

Friday 10 May 2013 – Afternoon
Time: 2 hours

Paper Reference
4MA0/1FR

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 ▶

P42930A

5/6/6/6/

P 4 2 9 3 0 A 0 1 2 0

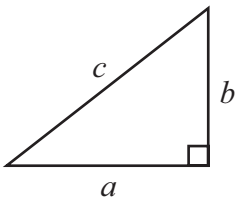
PEARSON

International GCSE MATHEMATICS

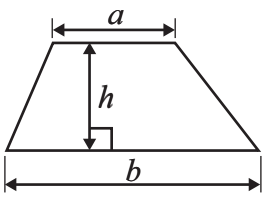
FORMULAE SHEET – FOUNDATION TIER

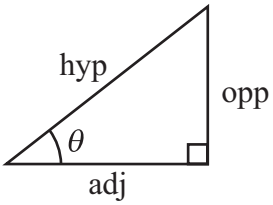
Pythagoras' Theorem

$a^2 + b^2 = c^2$



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





adj = hyp × cos θ

opp = hyp × sin θ

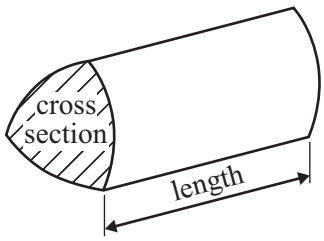
opp = adj × tan θ

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

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

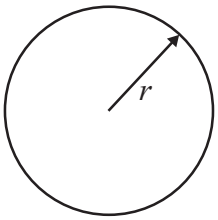
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

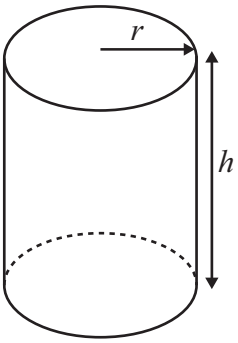
Volume of prism = area of cross section × length



Circumference of circle = $2\pi r$

Area of circle = πr^2





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

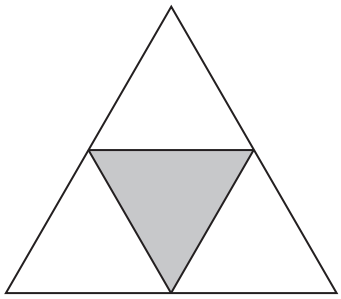
Curved surface area of cylinder = $2\pi rh$

Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all stages in your working.

1



(a) What fraction of this shape is shaded?

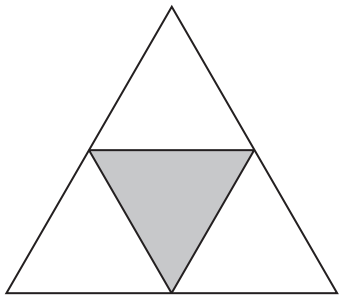
.....

(1)

(b) Write your answer to part (a) as a percentage.

..... %

(1)



(c) On the shape, draw all the lines of symmetry.

(2)

(Total for Question 1 is 4 marks)

Do NOT write in this space.

2 The table shows the diameters of three planets.

Planet	Diameter (km)
Mercury	4880
Venus	12 104
Mars	6764

(a) Write down the value of the 2 in the number 12 104

.....

(1)

(b) Write the number 4880 correct to the nearest hundred.

.....

(1)

(c) What is the difference between the diameter of Mars and the diameter of Mercury?

..... km

(1)

(d) Which number in the table is a multiple of 10?

.....

(1)

On Mars, the temperature is 27 °C in the day and −143 °C at night.

(e) Work out the difference in temperature between 27 °C and −143 °C.

..... °C

(2)

On Venus, 96% of the atmosphere is carbon dioxide.

(f) Write 96% as a decimal.

.....

(1)

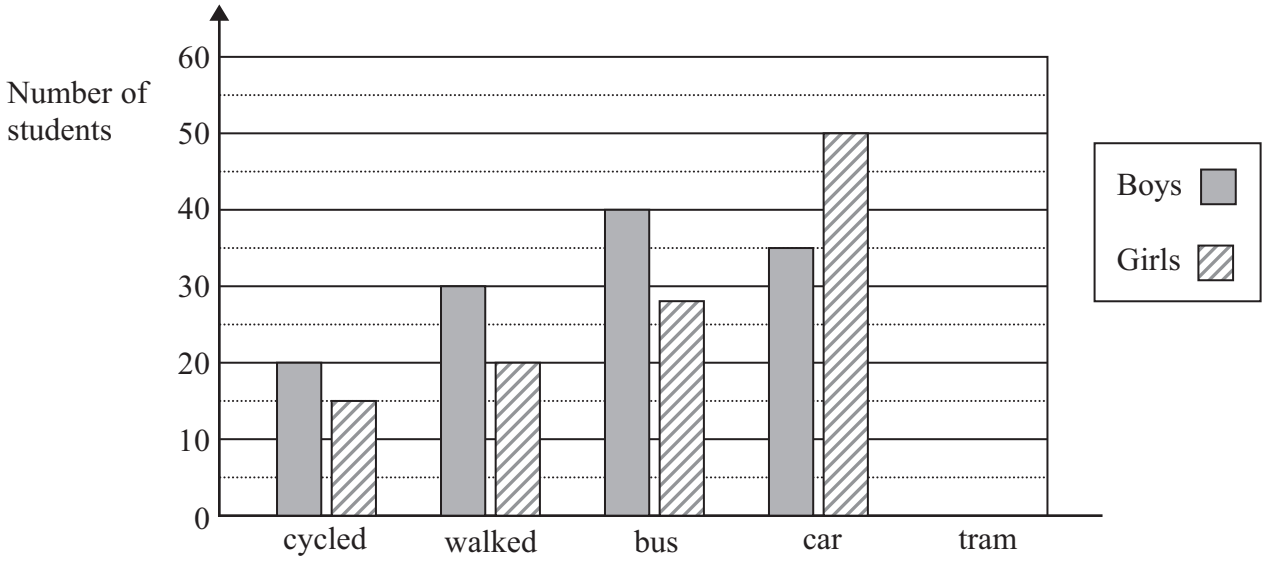
(g) Write 96% as a fraction.
Give your fraction in its simplest form.

.....

(2)

(Total for Question 2 is 9 marks)

3 The bar chart shows information about how some students travelled to school one day.



(a) Write down the number of boys who walked.

.....

(1)

(b) Write down the number of girls who travelled by bus.

.....

(1)

(c) 25 boys and 10 girls travelled by tram.
Show this information on the bar chart.

(1)

(d) Find the ratio of the number of boys who cycled to the number of girls who cycled.
Give your ratio in its simplest form.

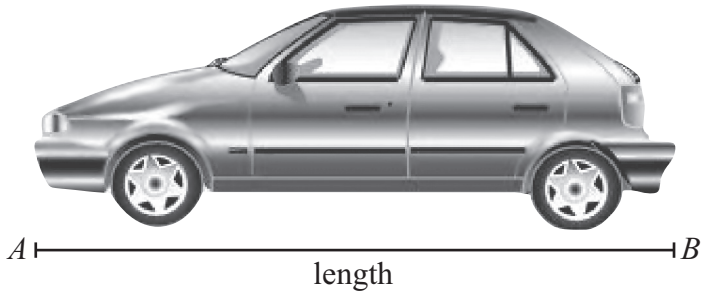
.....

(2)

(Total for Question 3 is 5 marks)

Do NOT write in this space.

4 Here is a scale drawing of a car.
The line *AB* represents the length of the car.



(a) Measure the length, in centimetres, of the line *AB*.

..... cm

(1)

(b) On the drawing, 2 centimetres represents a real length of 1 metre.
Work out the real length of the car.

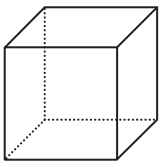
..... m

(2)

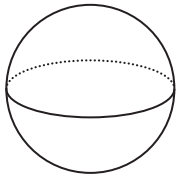
(Total for Question 4 is 3 marks)

5 Write down the mathematical name for each of these 3-D shapes.

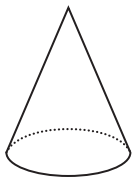
(i)



(ii)



(iii)



(i) .....

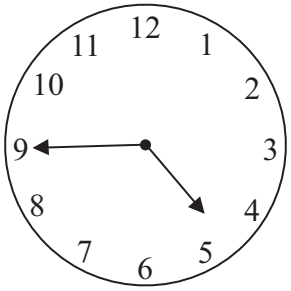
(ii) .....

(iii) .....

(Total for Question 5 is 3 marks)

Do NOT write in this space.

6 (a) One **afternoon**, Pritesh arrived at the doctor's surgery.
The clock shows the time he arrived.



Write this time using

(i) the 12-hour clock,

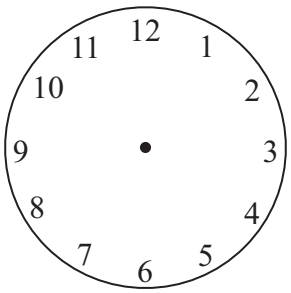
.....

(ii) the 24-hour clock.

.....

(2)

(b) Pritesh waited 25 minutes to see the doctor.
On the clock face, show the time at which Pritesh saw the doctor.



(1)

(Total for Question 6 is 3 marks)

Do NOT write in this space.

7 Here are the times, in seconds, recorded by the women in the 100 metre final at the 2008 Beijing Olympics.

11.19 11.03 10.98 11.14 11.07 10.78 10.98 11.20

(a) Find the mode.

..... seconds
(1)

(b) Work out the range.

..... seconds
(2)

(c) Work out the median.

..... seconds
(2)

(Total for Question 7 is 5 marks)

8 John has 170 CDs.
He packs them into identical boxes.
A full box holds 36 CDs.
He fills as many boxes as possible.

(i) Work out the number of boxes he fills.

.....

(ii) Work out the number of CDs left over.

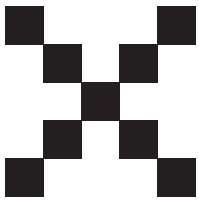
.....

(Total for Question 8 is 4 marks)

9 Here are some patterns made from black tiles.

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 black tiles in each pattern.

Multiply the Pattern number by 4 and then subtract 3 from your result.

(b) Work out the number of black tiles in Pattern number 10

.....

(2)

(c) A pattern is made from 81 black tiles.
Work out the Pattern number.

.....

(2)

(d) T is the number of black tiles in Pattern number P.
Find a formula for T in terms of P.

.....

(3)

(Total for Question 9 is 8 marks)

10

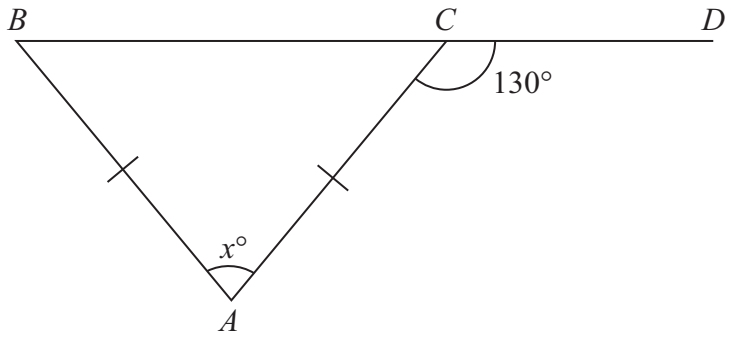


Diagram **NOT** accurately drawn

The diagram shows an isosceles triangle ABC.
$AB = AC$.
BCD is a straight line.
Angle $ACD = 130°$

Work out the value of x.

$x =$ .....

(Total for Question 10 is 3 marks)

11 (a) Find the value of 4^5

.....

(1)

(b) Find the cube root of 512

.....

(1)

(c) Write down the prime number between 24 and 30

.....

(1)

(Total for Question 11 is 3 marks)

12 (a) Write these fractions in order of size.
Start with the smallest fraction.

$$\frac{5}{6} \qquad \frac{4}{5} \qquad \frac{2}{3} \qquad \frac{11}{15}$$

.....

(2)

(b) Show that $\frac{4}{9} - \frac{1}{6} = \frac{5}{18}$

(2)

(Total for Question 12 is 4 marks)

---

13 (a) Simplify

(i) $a \times 5 \times b \times c$

.....

(ii) $q^5 + q^5 + q^5$

.....

(iii) $7m + 6n - 2m - 9n$

.....

(4)

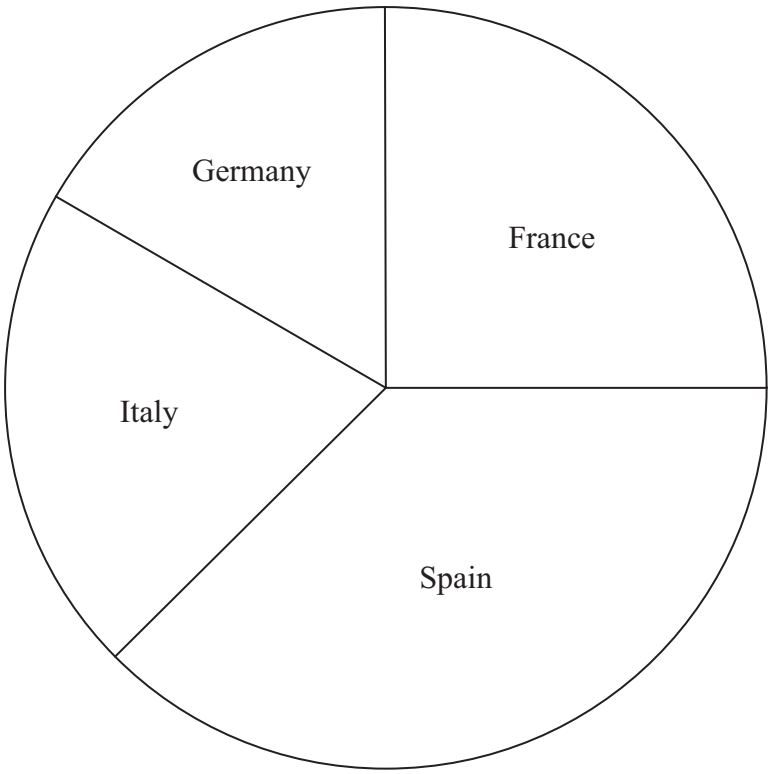
(b) Factorise $t^2 - 10t$

.....

(2)

(Total for Question 13 is 6 marks)

14 In a survey, some students named the country in which they took their last holiday.
The pie chart shows information about the results.
The pie chart is accurately drawn.



42 students took their last holiday in France.

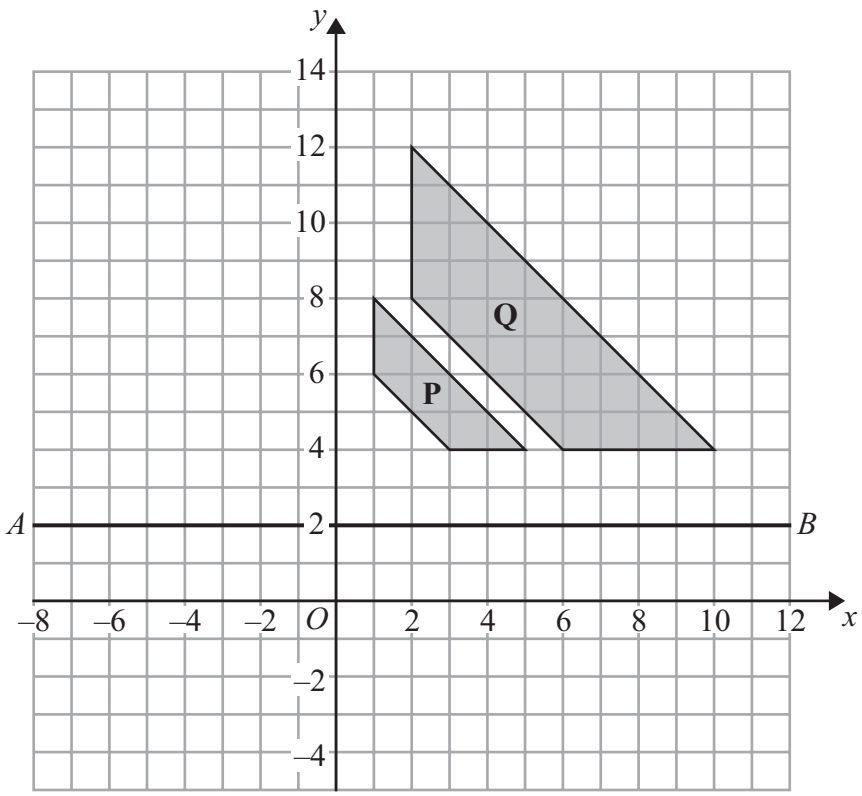
Work out the number of students who took their last holiday in Spain.

.....

(Total for Question 14 is 3 marks)

Do NOT write in this space.

15



(a) Describe fully the single transformation that maps shape **P** onto shape **Q**.

.....

.....

(3)

(b) On the grid, reflect shape **P** in the line AB.
Label the new shape **R**.

(2)

(c) Write down an equation of the line AB.

.....

(1)

(Total for Question 15 is 6 marks)

Do NOT write in this space.

16 A box contains some coloured cards.
Each card is red or blue or yellow or green.
The table shows the probability of taking a red card or a blue card or a yellow card.

Card	Probability
Red	0.3
Blue	0.35
Yellow	0.15
Green	

George takes at random a card from the box.

(a) Work out the probability that George takes a green card.

.....

(2)

George replaces his card in the box.
Anish takes a card from the box and then replaces the card.
Anish does this 40 times.

(b) Work out an estimate for the number of times Anish takes a yellow card.

.....

(2)

(Total for Question 16 is 4 marks)

17 Wendy travelled on the Eurostar train from St Pancras station to the Gare du Nord station.
The Eurostar train travelled a distance of 495 km.
The journey time was 2 hours 15 minutes.

Work out the average speed of the Eurostar train in kilometres per hour.

..... km/h

(Total for Question 17 is 3 marks)

18 The table shows information about the time, in minutes, spent on homework by each of 32 pupils in one night.

Time (t minutes)	Number of pupils
$0 < t \leqslant 20$	7
$20 < t \leqslant 40$	16
$40 < t \leqslant 60$	3
$60 < t \leqslant 80$	6

(a) Calculate the percentage of the 32 pupils who spent more than 60 minutes on their homework.

..... %

(2)

(b) Calculate an estimate for the total time spent on homework by the 32 pupils.

..... minutes

(3)

(Total for Question 18 is 5 marks)

19 Solve $x = \dfrac{7 - 2x}{3}$

Show clear algebraic working.

$x =$ .....

(Total for Question 19 is 3 marks)

20 (a) $A = \{s, u, p, e, r\}$
$B = \{c, o, m, p, u, t, e, r\}$

List the members of the set

(i) $A \cap B$

.....

(ii) $A \cup B$

.....

(2)

(b) $X =$ {prime numbers}
$Y =$ {factors of 12}

Is it true that $X \cap Y = \varnothing$?

Tick (✓) the appropriate box.

Yes	No
☐	☐

Explain your answer.

.....

(1)

(Total for Question 20 is 3 marks)

21 (a) Simplify, leaving your answers in index form,

(i) $6^5 \times 6^2 \times 6$

.....

(ii) $(9^7)^2$

.....

(2)

(b) $\dfrac{5^n \times 5^3}{5^6} = 5^4$

Find the value of n.

$n =$ .....

(2)

(Total for Question 21 is 4 marks)

22

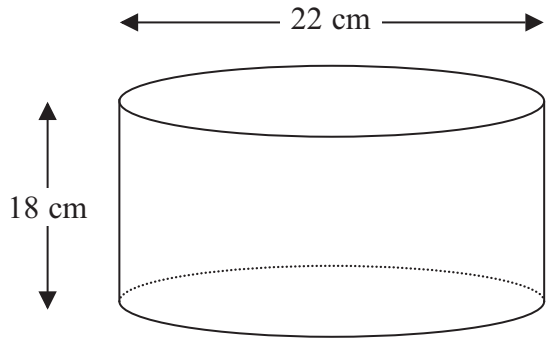


Diagram **NOT** accurately drawn

A cylinder has a diameter of 22 cm and a height of 18 cm.

Work out the volume of the cylinder.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 22 is 3 marks)

23

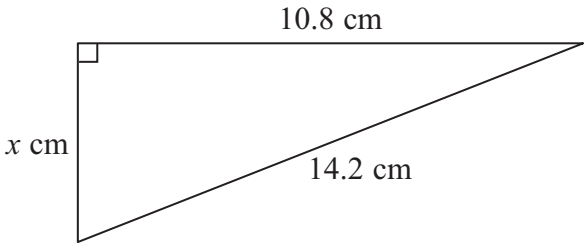


Diagram **NOT** accurately drawn

Work out the value of x.
Give your answer correct to 3 significant figures.

$x =$ .....

(Total for Question 23 is 3 marks)

24 Solve the simultaneous equations

$$3x - y = 6$$

$$x + y = 12$$

Show clear algebraic working.

x = ...

y = ...

(Total for Question 24 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

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