Write your name here

Surname	Other names

Edexcel
International GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics A

Paper 1F



Foundation Tier

Wednesday 11 January 2012 – Morning
Time: 2 hours

Paper Reference
4MA0/1F

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 ▶

P40610A

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6/6/6/4/4/3

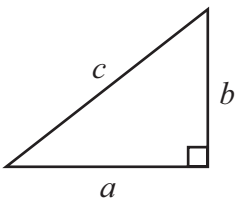
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PEARSON

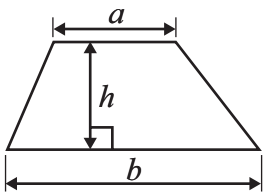
International GCSE MATHEMATICS

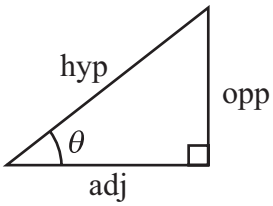
FORMULAE SHEET – FOUNDATION TIER

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



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





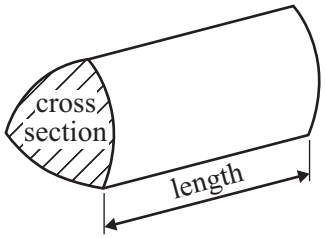
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

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

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

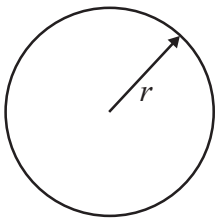
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

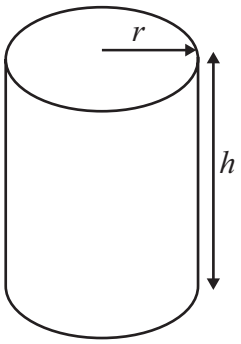
Volume of prism = area of cross section × length



Circumference of circle = $2\pi r$

Area of circle = πr^2





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

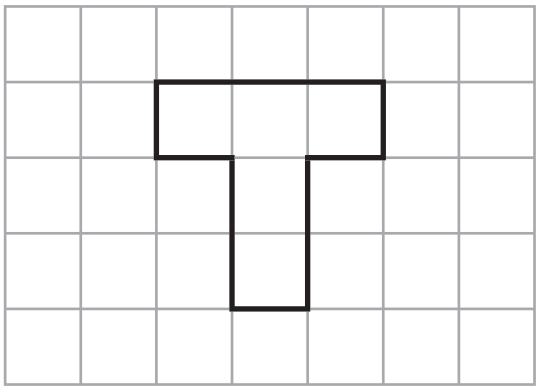
Curved surface area of cylinder = $2\pi rh$

Answer ALL TWENTY questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The diagram shows a shape on a centimetre grid.



(a) Find the area of the shape.

..... cm^2

(1)

(b) Find the perimeter of the shape.

..... cm

(1)

(c) Shade 60% of the shape.

(1)

(Total for Question 1 is 3 marks)

Do NOT write in this space.

2 (a) Write a number in each box so that each calculation is correct.

(i) $\square + 249 = 361$

(ii) $\square \times 11 = 176$

(iii) $\square \div 9 = 153$

(iv) $\square + 5^2 = 31$

(4)

(b) Here are four cards.

Each card has a number on it.



These four cards are arranged to make the number 5732

(i) Ben chooses three of the cards to make the smallest possible number.

Which three cards did Ben choose?



(ii) Arrange the three cards Ben chose in (i) to make the largest possible **odd** number.



(2)

(Total for Question 2 is 6 marks)

Do NOT write in this space.

3

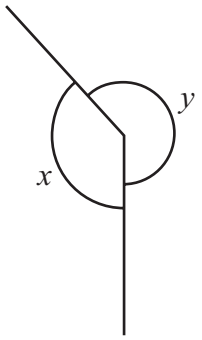


Diagram **NOT** accurately drawn

(a) Explain why the diagram is wrong for $x = 135°$ and $y = 245°$

.....

.....

(2)

(b) Write down the mathematical name for

(i) an angle of 135°

.....

(ii) an angle of 245°

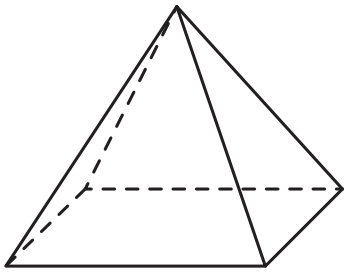
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(2)

(Total for Question 3 is 4 marks)

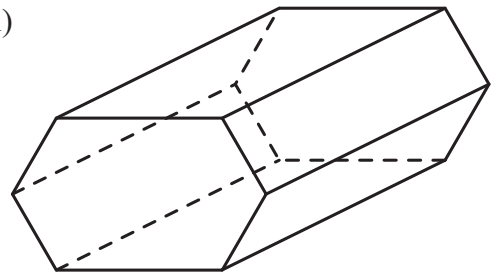
4 (a) Write down the mathematical name for each of these 3-D shapes.

(i)



.....

(ii)



.....

(2)

(b) How many faces has shape (i)?

.....

(1)

(c) How many vertices has shape (ii)?

.....

(1)

(Total for Question 4 is 4 marks)

5 The pictogram shows information about the numbers of ice creams sold by a shop on five days.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

(a) On which day did the shop sell the greatest number of ice creams?

.....

(1)

The shop sold 20 ice creams on Tuesday.

(b) (i) How many ice creams sold does  represent?

.....

(ii) Find the number of ice creams sold on Friday.

.....

(iii) Find the number of ice creams sold on Thursday.

.....

(3)

12% of the ice creams sold by the shop were strawberry.

(c) (i) Write 12% as a decimal.

.....

(ii) Write 12% as a fraction.
Give your fraction in its simplest form.

.....

(3)

On Saturday, the shop sold 15 chocolate ice creams and 35 vanilla ice creams.

(d) Write down the ratio of the number of chocolate ice creams sold to the number of vanilla ice creams sold.
Give your answer in its simplest form.

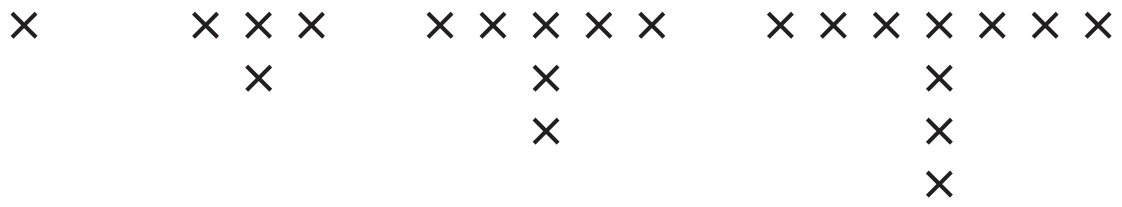
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(2)

(Total for Question 5 is 9 marks)

Do NOT write in this space.

6 Here are some patterns made from crosses.



Pattern number 1 | Pattern number 2 | Pattern number 3 | Pattern number 4

(a) In the space below, draw Pattern number 5

(1)

This rule can be used to find the number of crosses in each pattern.

Multiply the Pattern number by 3 and then subtract 2

(b) Work out the number of crosses in Pattern number 9

.....

(2)

(c) A pattern has 37 crosses.

Work out the Pattern number.

.....

(2)

(d) N is the number of crosses in Pattern number P.

Write down a formula for N in terms of P.

.....

(3)

(Total for Question 6 is 8 marks)

7 The temperature of food in a freezer is −18°C.
The temperature of food in a fridge is 3°C.

(a) What is the difference between the temperature of food in the freezer and the temperature of food in the fridge?

..... °C

(2)

(b) Alison took a pie from the freezer.
The temperature of the pie was −18°C.
One hour later, the temperature of the pie was 11°C higher.

Work out the temperature of the pie after one hour.

..... °C

(2)

(c) At 1425 Zak takes a chicken from the fridge.
10 minutes later he places the chicken in an oven to cook.
The cooking time is 1 hour 45 minutes.

(i) Write 1425 using pm.

..... pm

(ii) At what time will the chicken be cooked?

.....

(3)

(Total for Question 7 is 7 marks)

Do NOT write in this space.

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

(i) the last letter of a day of the week, chosen at random, is the letter *y*.
Label this cross **A**.

(ii) a person chosen at random has a birthday in June.
Label this cross **B**.

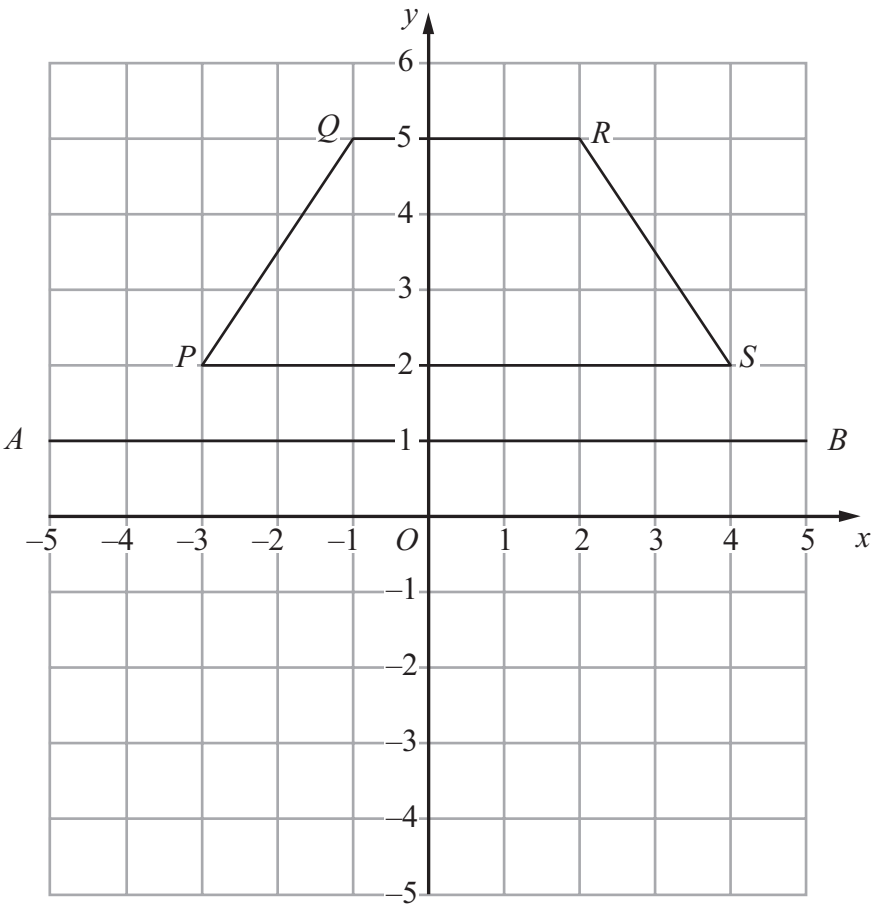
(iii) the next baby born is a girl.
Label this cross **C**.



(Total for Question 8 is 3 marks)

Do NOT write in this space.

9 The diagram shows a trapezium $PQRS$ and a line AB on a centimetre grid.



(a) Measure the length of RS.
Give your answer in millimetres.

..... mm

(1)

(b) Write down the coordinates of Q.

(..... , ...)

(1)

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

.....

(1)

(d) Reflect the trapezium $PQRS$ in the line AB.

(2)

(Total for Question 9 is 5 marks)

Do NOT write in this space.

10 (a) Find the value of $8 \times (2 - 7)$

.....

(1)

(b) Find the value of 4^5

.....

(1)

(c) Write down the prime number whose value is nearest to 25

.....

(1)

(d) (i) Find the cube root of 41
Write down all the figures on your calculator display.

.....

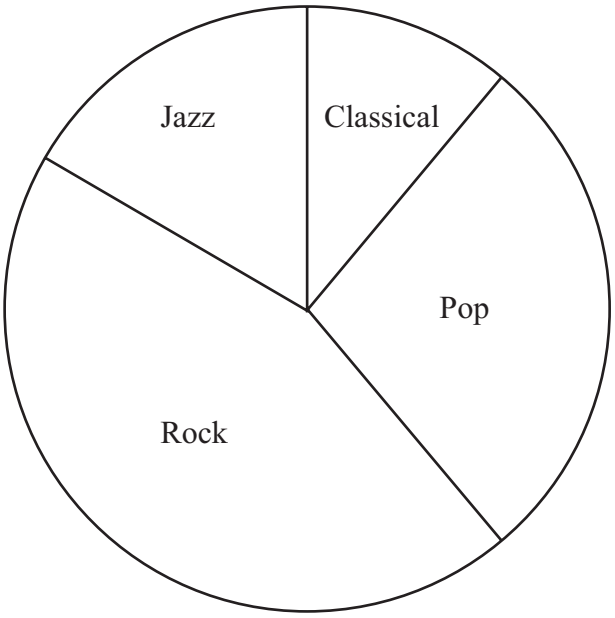
(ii) Write your answer to part (i) correct to 3 significant figures.

.....

(2)

(Total for Question 10 is 5 marks)

11 First year students at a college chose their favourite type of music.
The pie chart shows information about their choices.
The pie chart is accurately drawn.



(a) 18 students chose Classical.

Work out the number of students who chose Jazz.

.....

(3)

(b) Another pie chart is to be drawn for second year students.
There are 150 second year students.
60 of these students chose Rock.

Calculate the angle in the pie chart for these 60 second year students who chose Rock.

.....°

(2)

(Total for Question 11 is 5 marks)

12 (a) Simplify

(i) $b \times 3 \times e$

.....

(ii) $p^3 + p^3 + p^3 + p^3$

.....

(iii) $6g - 4h + 2g - 3h$

.....

(4)

(b) Solve $\frac{x}{3} = 15$

$x =$ .....

(1)

(c) Factorise $5a - 3a^2$

.....

(2)

(d) Expand

(i) $2(4 - 3w)$

.....

(ii) $y^2 (y + 10)$

.....

(3)

(Total for Question 12 is 10 marks)

13 In January 2007, the population of Canada was 32 million.
7 million of these Canadian people spoke French as their first language.

(a) Express 7 million as a percentage of 32 million.
Give your answer correct to 1 decimal place.

..... %

(2)

Between January 2007 and January 2009, the population of Canada increased by 4%.

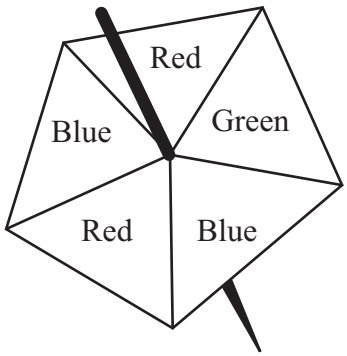
(b) Increase 32 million by 4%.
Give your answer correct to the nearest million.

..... million

(3)

(Total for Question 13 is 5 marks)

14 Here is a fair 5-sided spinner.



Hans spins the spinner 30 times.

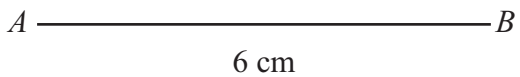
Work out an estimate for the number of times the spinner lands on Red.

.....

(Total for Question 14 is 2 marks)

15 The lengths of the sides of a rhombus are 6 cm.
The length of the longer diagonal of the rhombus is 10 cm.
AB is a side of the rhombus.

Construct an accurate, full-size drawing of the rhombus.
You must show all construction lines.



(Total for Question 15 is 4 marks)

16 (a) $\mathscr{E}$ = {Students in Year 12}
G = {Students who study German}
F = {Students who study French}
M = {Students who study Maths}

(i) $G \cap M = \emptyset$

Use this information to write a statement about the students who study German in Year 12

.....

(ii) Preety is a student in Year 12

Preety $\notin F$.

Use this information to write a statement about Preety.

.....

(2)

(b) A = {2, 4, 6, 8, 10}
$A \cap B$ = {2, 4}
$A \cup B$ = {1, 2, 3, 4, 6, 8, 10}

List all the members of set B.

.....

(2)

(Total for Question 16 is 4 marks)

Do NOT write in this space.

17

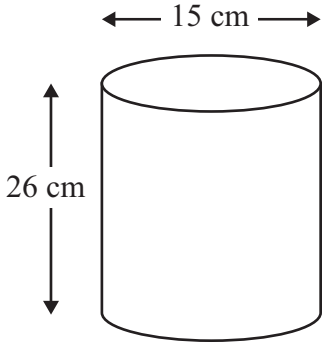


Diagram **NOT** accurately drawn

A cylinder has a diameter of 15 cm and a height of 26 cm.

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

..... cm^3

(Total for Question 17 is 3 marks)

18 Solve $3(x - 4) = 5x + 8$
Show your working clearly.

$x =$ .....

(Total for Question 18 is 3 marks)

19 The table shows information about the numbers of text messages sent by 40 teenagers in one day.

Number of text messages	Number of teenagers	Mid-interval value	
0 to 2	3	1	
3 to 5	6	4	
6 to 8	10		
9 to 11	15		
12 to 14	5		
15 to 17	1		

(a) Write down the modal class.

.....

(1)

(b) Work out an estimate for the mean number of texts sent by the 40 teenagers in one day.

.....

(4)

(Total for Question 19 is 5 marks)

20

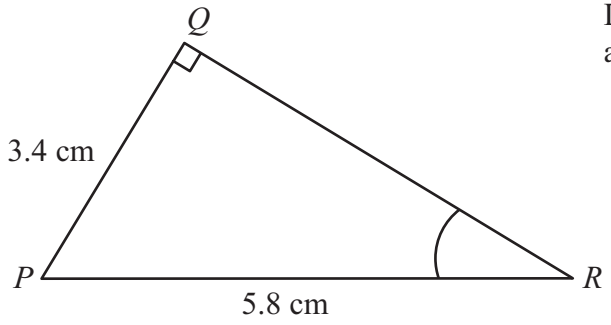


Diagram **NOT** accurately drawn

Triangle PQR has a right angle at Q.

$PQ = 3.4$ cm and $PR = 5.8$ cm.

(a) Work out the size of angle QRP.
Give your answer correct to 1 decimal place.

..... °

(3)

The length 5.8 cm, of PR, is correct to 2 significant figures.

(b) (i) Write down the upper bound of the length of PR.

..... cm

(ii) Write down the lower bound of the length of PR.

..... cm

(2)

(Total for Question 20 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS