Write your name here

Surname	Other names

Pearson Edexcel Certificate
Pearson Edexcel
International GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics A

Paper 1F

Foundation Tier

Monday 11 January 2016 – Morning
Time: 2 hours

Paper Reference
4MA0/1F
KMA0/1F

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 ▶

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1/1/1/1/

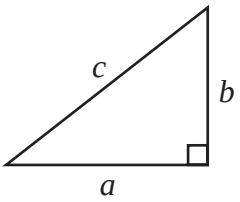
P 4 6 7 9 4 A 0 1 2 4

PEARSON

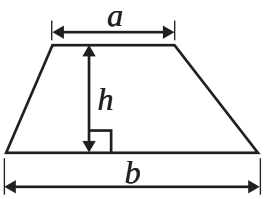
International GCSE MATHEMATICS

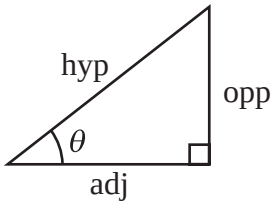
FORMULAE SHEET – FOUNDATION TIER

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



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





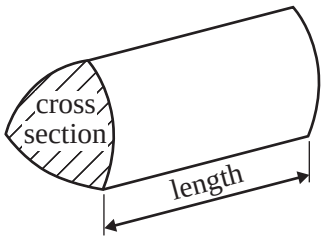
adj = hyp × cos θ
opp = hyp × sin θ
opp = adj × tan θ

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

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

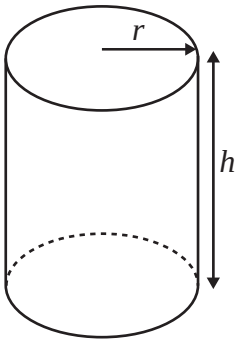
$\tan\theta = \frac{\text{opp}}{\text{adj}}$

Volume of prism = area of cross section × length



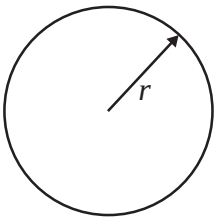
Circumference of circle = $2\pi r$

Area of circle = πr^2



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

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



Answer ALL TWENTY ONE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The table shows the distance, in kilometres, from Cairo to each of six other cities.

City	Distance from Cairo (km)
Hong Kong	8103
Jakarta	8943
London	3493
Nairobi	3518
New Delhi	4408
Singapore	8220

(a) Which of these cities is furthest away from Cairo?

.....

(1)

(b) Write the number 8103 in words.

.....

.....

(1)

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

.....

(1)

(d) Write the number 3518 correct to the nearest ten.

.....

(1)

Alex travels from London to Cairo.
He then travels from Cairo to Singapore.

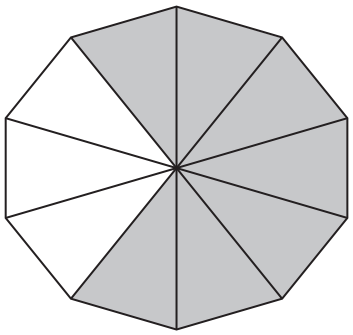
(e) How far has Alex travelled?

..... km

(2)

(Total for Question 1 is 6 marks)

2 (a) (i) What fraction of this shape is shaded?



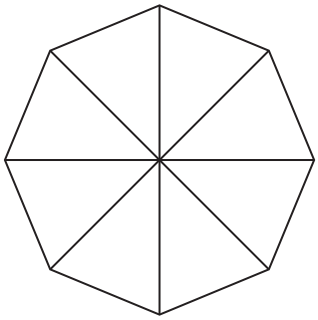
.....

(ii) Write your fraction as a decimal.

.....

(2)

(b) (i) Shade 25% of this shape.



(ii) Write 25% as a fraction.

.....

(2)

43% of a shape is shaded.

(c) What percentage of the shape is not shaded?

.....%

(1)

(Total for Question 2 is 5 marks)

3 The table shows information about five different tablet computers.

Name	Price	Weight (kg)	Length (mm)	Width (mm)	Thickness (mm)
E-bk	£179	0.315	194	127	11.0
Praxus	£165	0.340	199	120	10.6
Reader	£159	0.395	193	137	10.3
Star	£200	0.345	194	122	10.5
Tpad	£269	0.308	200	135	7.2

(a) Write down the name of the tablet computer with the least weight.

.....

(1)

The E-bk tablet computer has a weight of 0.315 kg.

(b) Change 0.315 kg into grams.

..... grams

(1)

The Reader tablet computer has a width of 137 mm.

(c) Change 137 mm into centimetres.

..... cm

(1)

Martin is the manager of a company.
He buys each person in his sales team a Praxus tablet computer.

Martin has a budget of £1000
There are 6 people in the sales team.

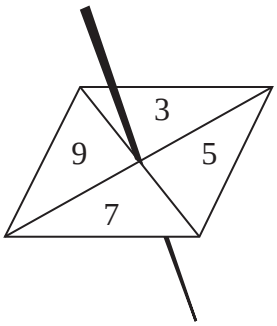
(d) How much money is left in Martin's budget after buying 6 Praxus tablet computers?

£.....

(3)

(Total for Question 3 is 6 marks)

4 Rayna has a fair 4-sided spinner.
The spinner can land on 3, 5, 7 or 9



Rayna spins the spinner 20 times.
She records the score for each spin.
Here are her scores.

3	9	5	7	9	5	3	3	5	9
9	9	7	5	9	7	5	9	3	7

(a) Complete the frequency table for these results.

Score	Tally	Frequency
3		
5		
7		
9		

(2)

(b) Write down the mode of her scores.

.....

(1)

(c) Find the range of her scores.

.....

(1)

Rayna says that 3, 5, 7 and 9 are all prime numbers.

(d) Explain why Rayna is wrong.

.....

.....

(1)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Rayna now spins her spinner twice.
She adds the two numbers together to get the total.

(e) Complete the table to show the total for each possible outcome.
Five of the totals have been done for you.

2nd spin \ 1st spin	**3**	**5**	**7**	**9**
3	6		10	
5		10	12	
7	10			
9				

(2)

Rayna spins the spinner twice.

(f) (i) Write down the probability that she will get a total of 10

.....

(ii) Write down the probability that she will get a total greater than 12

.....

(3)

(Total for Question 4 is 10 marks)

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

1 2 4 8 16

(a) Write down the next term of the sequence.

.....

(1)

(b) Explain how you found your answer.

.....

(1)

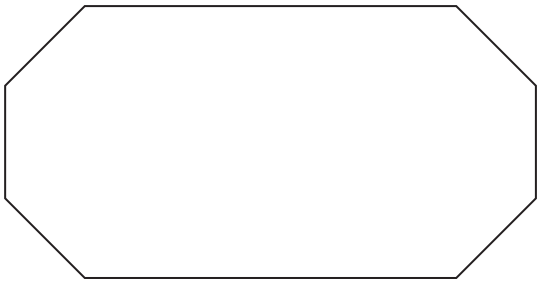
(c) Find the 10th term of the sequence.

.....

(1)

(Total for Question 5 is 3 marks)

6 Here is a polygon.



(a) Write down the mathematical name for this type of polygon.

.....

(1)

(b) Explain why this polygon is **not** a regular polygon.

.....

.....

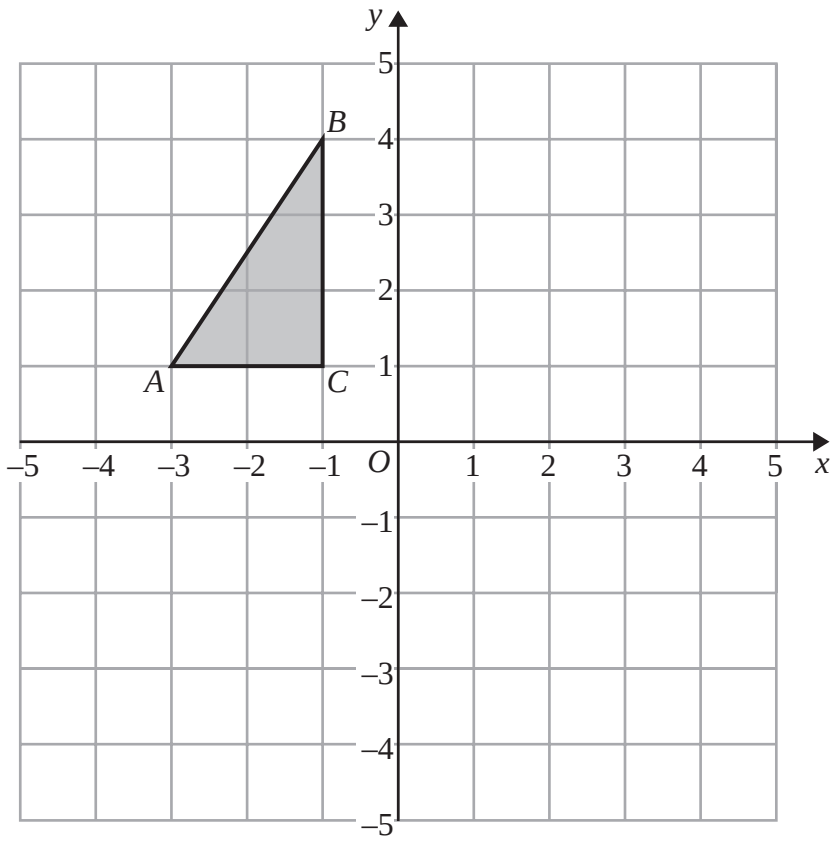
(1)

(c) On the diagram, mark with arrows (>>) a pair of parallel lines.

(1)

(Total for Question 6 is 3 marks)

7 The diagram shows triangle *ABC* drawn on a centimetre grid.



(a) Write down the coordinates of point *A*.

(..... , ...)

(1)

(b) Reflect triangle *ABC* in the *x*-axis.

(1)

(c) Work out the area of triangle *ABC*.
You must include the units with your answer.

....

(2)

(Total for Question 7 is 4 marks)

8 (a) Simplify $5k + 7k - 2k$

.....

(1)

(b) Simplify $e \times 4 \times g$

.....

(1)

(c) Solve $6m + 5 = 17$

$m =$ .....

(2)

(d) Factorise $15r + 10$

.....

(1)

(e) Simplify $y^7 \times y^2$

.....

(1)

(f) Expand and simplify $(x + 5)(x - 1)$

.....

(2)

(Total for Question 8 is 8 marks)

9 (a)

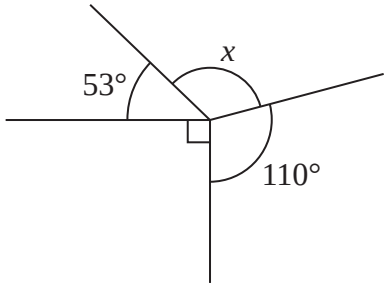


Diagram **NOT** accurately drawn

(i) Work out the size of angle *x*.

.....°

(ii) Give a reason for your answer.

.....

.....

(3)

(b) *PQR* is an isosceles triangle.

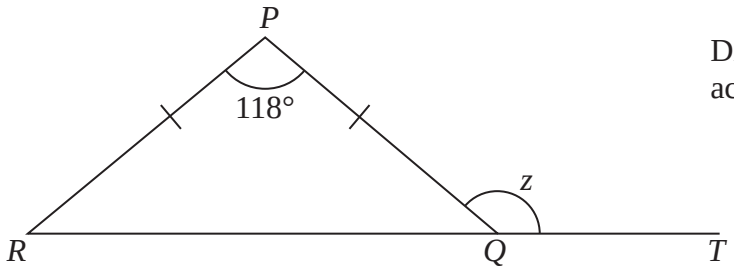


Diagram **NOT** accurately drawn

PQ = *PR*
Angle *RPQ* = 118°
RQT is a straight line.

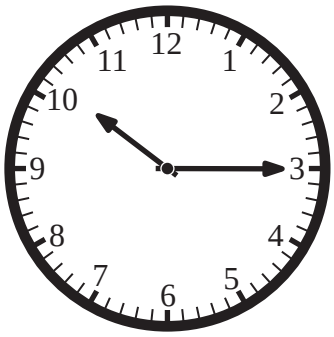
Work out the size of angle *z*.

.....°

(3)

(Total for Question 9 is 6 marks)

10 (a) One morning, Lizzy went on a bus journey.
The clock shows the time that she left home.



(i) Write down this time using the 12-hour clock.

.....

Lizzy got home at ten to four in the afternoon.

(ii) Write down this time using the 24-hour clock.

.....

(2)

(b) On another day, Lizzy drove by car to visit her aunt.
She left home at 9 30 am.

Lizzy arrived at her aunt's house at 11 15 am.
She drove a distance of 140 km.

Work out, in km/h, Lizzy's average speed for the journey.

..... km/h

(3)

(Total for Question 10 is 5 marks)

11 A total of 1200 passengers are booked to go on a cruise ship.

70% of the passengers will get on the ship at Southampton.

$\frac{1}{6}$ of the passengers will get on the ship at Lisbon.

The rest of the passengers will get on the ship at Venice.

(a) How many passengers will get on the ship at Venice?

.....

(3)

There are 1200 passengers on the ship and 900 crew on the ship.

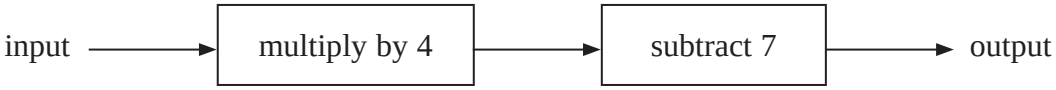
(b) Write down the ratio of the number of passengers to the number of crew.
Give your ratio in its simplest form.

.....

(2)

(Total for Question 11 is 5 marks)

12 Here is a number machine.



(a) Work out the input when the output is 17

.....

(2)

(b) Find an expression, in terms of x, for the output when the input is x.

.....

(2)

(Total for Question 12 is 4 marks)

13 Show that $\frac{3}{8} \div \frac{7}{12} = \frac{9}{14}$

(Total for Question 13 is 2 marks)

14 Here is a list of the ingredients needed to make lentil soup for 6 people.

Lentil Soup (for 6 people)
120 g lentils 300 g carrots 800 ml vegetable stock 3 onions

Jenny wants to make lentil soup for 24 people.

(a) Work out the amount of vegetable stock she needs.

..... ml

(2)

Ravi is going to make lentil soup.
He uses 450 g of carrots.

(b) How many people is Ravi making the lentil soup for?

.....

(2)

(Total for Question 14 is 4 marks)

15 Kim asked 40 people how many text messages they each sent on Monday.
The table shows her results.

Number of text messages sent	Frequency
0 to 4	6
5 to 9	3
10 to 14	5
15 to 19	12
20 to 24	14

Kim is going to draw a pie chart for this information.

(a) Work out the size of the angle on the pie chart for the sector representing 0 to 4 text messages.

.....°

(2)

(b) Write down the modal class.

.....

(1)

(c) Calculate an estimate for the mean number of text messages sent.

.....

(4)

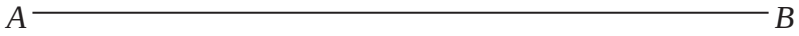
(d) What percentage of these 40 people sent 20 or more text messages?

.....%

(2)

(Total for Question 15 is 9 marks)

16 Use ruler and compasses only to construct the perpendicular bisector of line *AB*.
You must show all your construction lines.



(Total for Question 16 is 2 marks)

17 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
$A = \{1, 2, 3, 4, 5, 6\}$
$B = \{\text{odd numbers}\}$

(a) List the members of $A \cup B$

.....

(1)

C is a set such that $A \cap C = \{4, 5\}$
The set C has 4 members.

(b) List the members of one possible set C

.....

(2)

(Total for Question 17 is 3 marks)

18 Solve $3(2x + 5) = 4 - x$
Show clear algebraic working.

$x =$ .....

(Total for Question 18 is 3 marks)

19

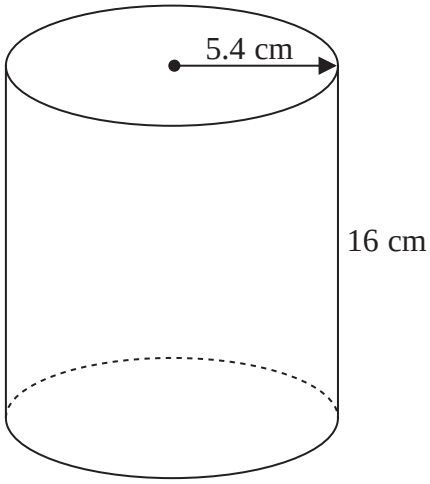


Diagram **NOT** accurately drawn

A cylinder has radius 5.4 cm and height 16 cm.

(a) Work out the volume of the cylinder.
Give your answer correct to the nearest whole number.

..... cm^3

(2)

The radius 5.4 cm is correct to 2 significant figures.

(b) (i) Write down the upper bound of the radius.

..... cm

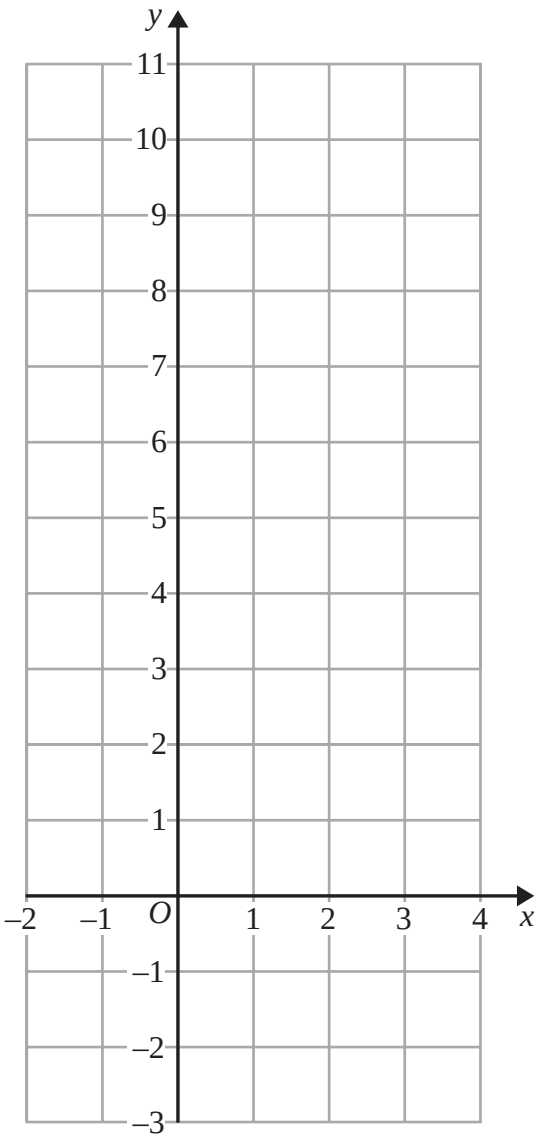
(ii) Write down the lower bound of the radius.

..... cm

(2)

(Total for Question 19 is 4 marks)

20 (a) On the grid, draw the graph of $y = 2x + 3$ for values of x from –2 to 4



(3)

(b) Show, by shading on the grid, the region that satisfies **all three** of the inequalities

$$x \leqslant 3 \quad \text{and} \quad y \geqslant 2 \quad \text{and} \quad y \leqslant 2x + 3$$

Label your region **R**.

(2)

(Total for Question 20 is 5 marks)

21

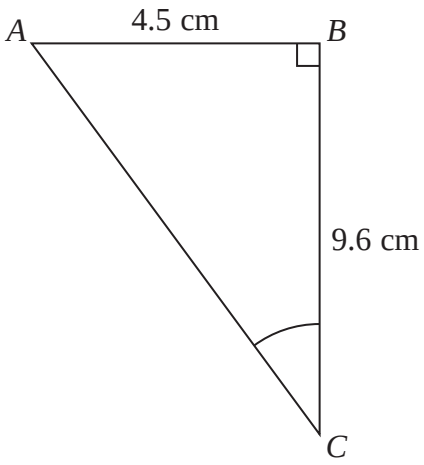


Diagram **NOT** accurately drawn

Work out the size of angle *ACB*.
Give your answer correct to 1 decimal place.

.....°

(Total for Question 21 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

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