Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

* 4 9 2 5 7 8 8 1 0 *

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/13**

Paper 1 (Core) **May/June 2016**

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
Do not use staples, paper clips, glue or correction fluid.
You may use an HB pencil for any diagrams or graphs.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** the questions.
CALCULATORS MUST NOT BE USED IN THIS PAPER.
All answers should be given in their simplest form.
You must show all the relevant working to gain full marks and you will be given marks for correct methods even if your answer is incorrect.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total number of marks for this paper is 40.

This document consists of **8** printed pages.

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Formula List

Area, A, of triangle, base b, height h.	$A = \frac{1}{2}bh$
Area, A, of circle, radius r.	$A = \pi r^2$
Circumference, C, of circle, radius r.	$C = 2\pi r$
Curved surface area, A, of cylinder of radius r, height h.	$A = 2\pi rh$
Curved surface area, A, of cone of radius r, sloping edge l.	$A = \pi rl$
Curved surface area, A, of sphere of radius r.	$A = 4\pi r^2$
Volume, V, of prism, cross-sectional area A, length l.	$V = Al$
Volume, V, of pyramid, base area A, height h.	$V = \frac{1}{3}Ah$
Volume, V, of cylinder of radius r, height h.	$V = \pi r^2 h$
Volume, V, of cone of radius r, height h.	$V = \frac{1}{3}\pi r^2 h$
Volume, V, of sphere of radius r.	$V = \frac{4}{3}\pi r^3$

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Answer **all** the questions.

1 The colour of 20 cars in a car park is recorded below.

Red	Red	Red	Blue	White	White	Blue	Red	Green	Green
Red	White	Green	Red	White	Red	Green	Red	White	White

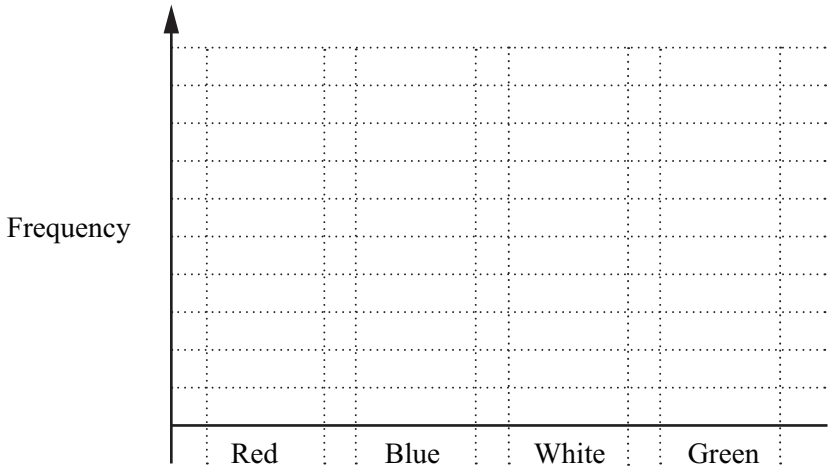
(a) Complete the frequency table.

Colour of cars	Tally	Frequency
Red		
Blue		
White		
Green		

[2]

(b) Draw a bar chart to show this information.

Complete the scale on the frequency axis.



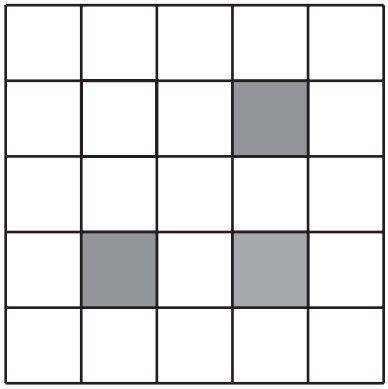
[3]

2 Write these in order of size, starting with the smallest.

$0.49 \qquad \frac{2}{5} \qquad 42\%$

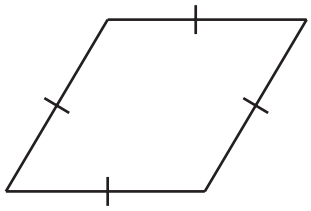
..... *smallest* < ..... < ..... [2]

3 Complete the diagram by shading two more squares to give a shape with rotational symmetry of order 4.

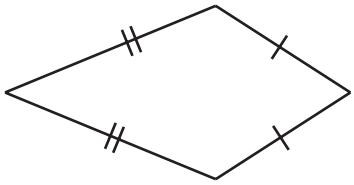


[1]

4 Give the mathematical name for each of these quadrilaterals.



.....



..... [2]

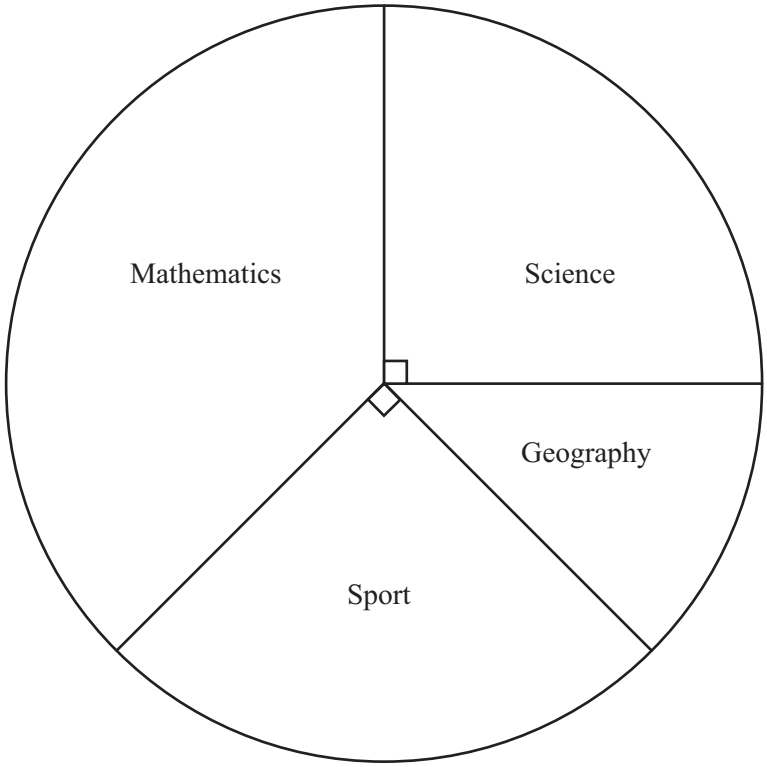
5 Write the ratio 9 : 54 in the form 1 : *n*.

1 : ..... [1]

6 Work out the lowest common multiple (LCM) of 6 and 8.

..... [2]

7 In a survey, the favourite lessons of a number of students were recorded.
The pie chart shows the results.



(a) Find the fraction of students whose favourite lesson was geography.

..... [2]

(b) The favourite lesson of 9 students was mathematics.

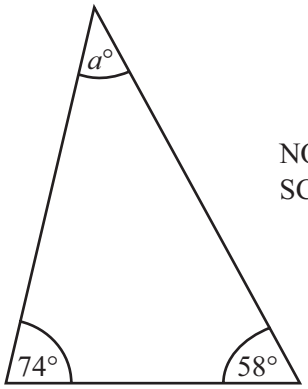
Work out the total number of students in the survey.

..... [2]

8 Find the value of $5x - 3y$ when $x = 4$ and $y = 7$.

..... [2]

9

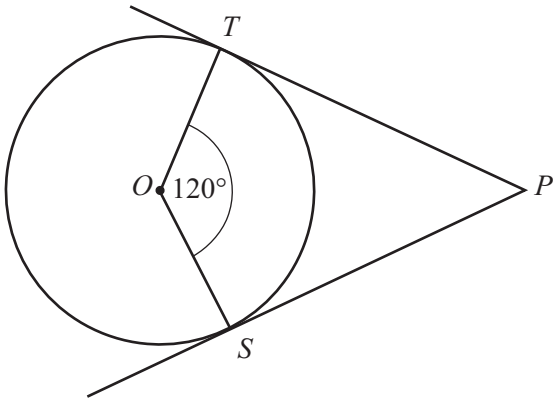


NOT TO SCALE

(a) Find the value of a.

$a =$ ..... [1]

(b)



NOT TO SCALE

PS and PT are tangents to the circle centre O.
Angle $TOS = 120°$.

Work out the size of angle TPO.

Angle $TPO =$ ..... [2]

10 Estimate the value of

$$(3.96 + 2.08 \times 0.47)^2 \ .$$

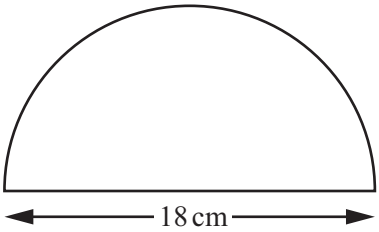
..... [3]

11 A cup of coffee costs 90 cents.
A cup of tea costs 85 cents.

Write down the total cost, in cents, of p cups of coffee and q cups of tea.

..... cents [2]

12 The diagram shows a semicircle with diameter 18 cm.

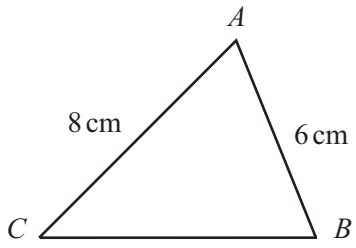


NOT TO SCALE

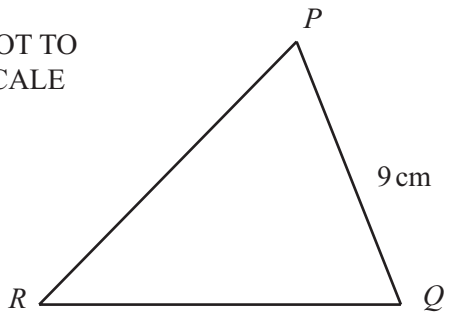
Find the total perimeter of the semicircle.
Leave your answer in terms of π.

..... cm [3]

13



NOT TO SCALE



Triangle ABC and triangle PQR are similar.

Find the length of PR.

$PR =$ ..... cm [2]

Question 14 and 15 are printed on the next page.

14 **(a)** Complete the statement.

The graph of $y = f(x)$ is translated by the vector $\begin{pmatrix} 0 \\ -1 \end{pmatrix}$ onto the graph of $y =$ ..... [1]

(b) The function $f(x) = 12 - 3x$ is defined for $2 \leqslant x \leqslant 9$.

Write down the range of $f(x)$.

..... [2]

15

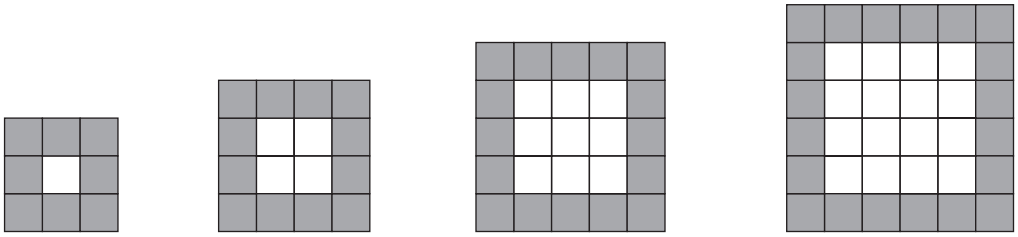


Diagram 1 Diagram 2 Diagram 3 Diagram 4

Look at the patterns of grey and white squares.

(a) Complete the table to show the number of **small** squares in each diagram.

Diagram	1	2	3	4
Small white squares	1	4		
Small grey squares	8	12		

[2]

(b) For Diagram 8, write down the number of small white squares.

..... [1]

(c) Write down a rule to find the number of small grey squares in Diagram n.

..... [2]

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