Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

4080524437

CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/32**

Paper 3 (Core) **May/June 2018**

1 hour 45 minutes

Candidates answer on the Question Paper.

Additional Materials: Geometrical Instruments
Graphics Calculator

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.
Unless instructed otherwise, give your answers exactly or correct to three significant figures as appropriate.
Answers in degrees should be given to one decimal place.
For π, use your calculator value.
You must show all the relevant working to gain full marks and you will be given marks for correct methods, including sketches, 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 96.

This document consists of **16** 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 **(a)** Complete the statement.

6 weeks = ...days [1]

(b) Write in figures the number fifteen thousand and twenty seven.

..... [1]

(c) Write

(i) 144.1 correct to the nearest 10,

..... [1]

(ii) 5.5349 correct to 2 decimal places,

..... [1]

(iii) 50 617 correct to 2 significant figures.

..... [1]

(d) Write 0.7

(i) as a fraction,

..... [1]

(ii) as a percentage.

.....% [1]

(e) Find the value of 0.7^3.

..... [1]

2 Tam recorded the number of hours of homework he did each night for 25 nights.
His results, in hours, are shown below.

4	1	4	3	2	3	4	2	1
1	3	2	1	2	1	1	3	5
4	1	3	3	1	3	4		

(a) Complete the frequency table.

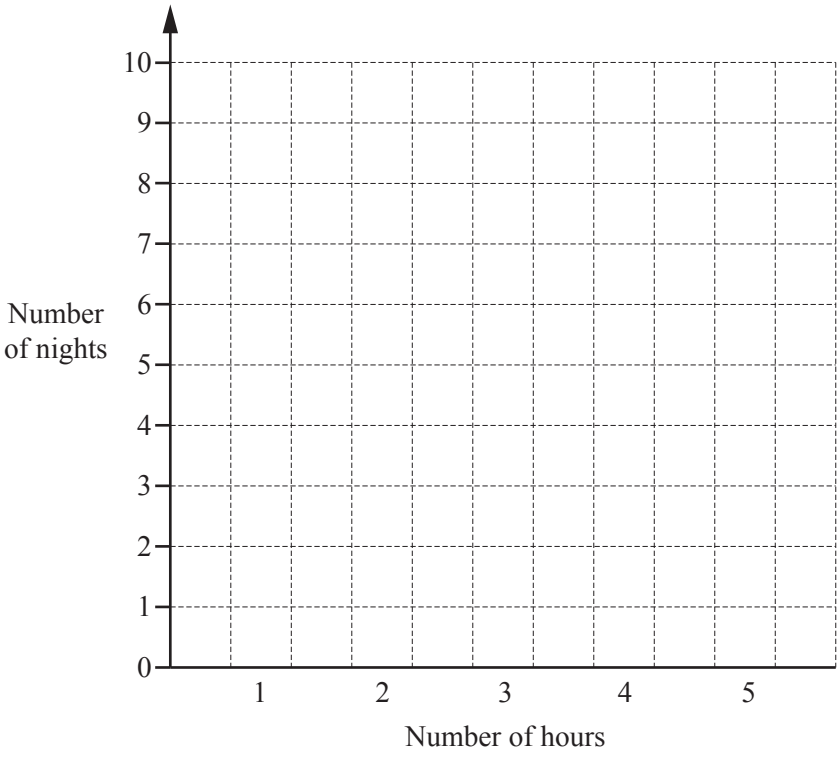
Number of hours	Number of nights
1	
2	
3	
4	
5	

[2]

(b) Which number of hours is the mode?

..... hours [1]

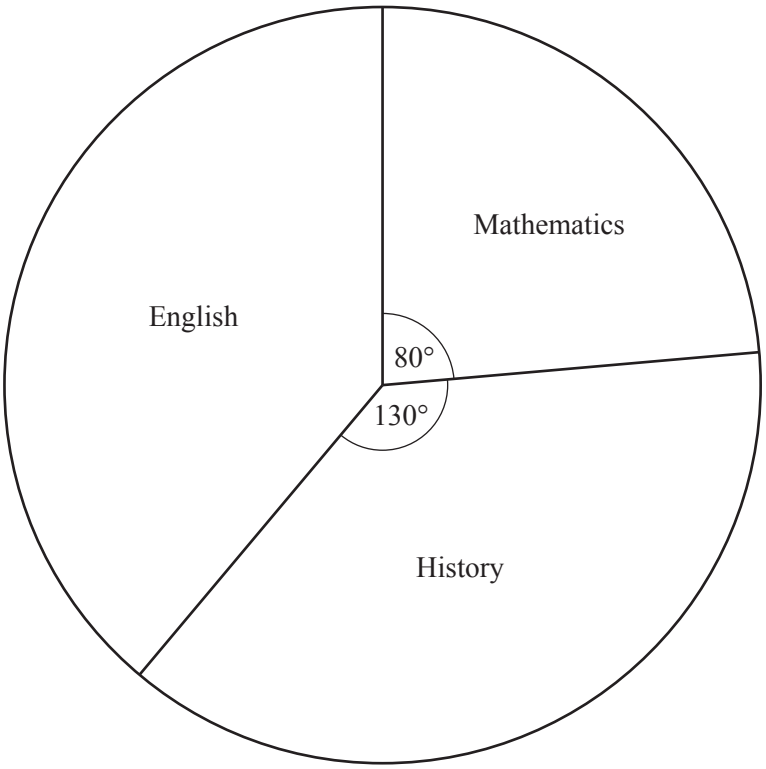
(c) Draw a bar chart to show this information.



[2]

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(d) On one of the nights, Tam did mathematics homework, English homework and history homework. The pie chart shows the time he spent on each subject.



(i) Work out the fraction of the total time he spent on mathematics homework. Give your answer in its simplest form.

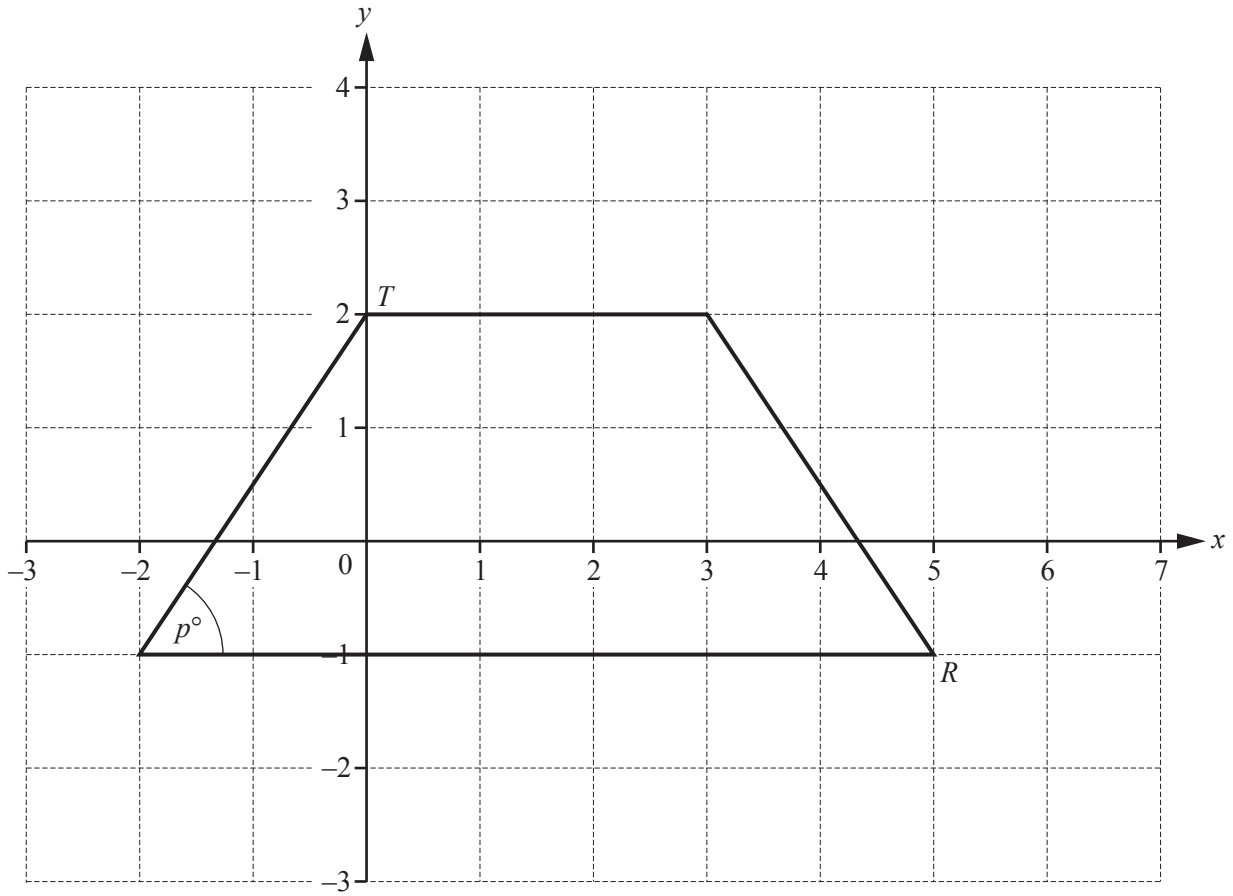
..... [2]

(ii) Tam spent 3 hours altogether on his homework that night.

Work out the time, in minutes, Tam spent on English homework.

.....min [3]

3



(a) Write down the co-ordinates of

(i) T,

(..... , ...) [1]

(ii) R.

(..... , ...) [1]

(b) On the grid, draw the line of symmetry of the quadrilateral. [1]

(c) Measure the size of angle p.

..... [1]

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4 In each part, give the mathematical name for the shape described.

(a) A quadrilateral with each pair of opposite sides parallel.

..... [1]

(b) A triangle with exactly two sides equal in length.

..... [1]

(c) A polygon with 6 sides.

..... [1]

(d) A quadrilateral with all sides of equal length but not all angles equal.

..... [1]

(e) A solid shape with six faces.
Four of the faces are identical rectangles and the other two faces are identical squares.

..... [1]

5 **(a)** A box contains 40 orange counters and 32 blue counters only.

(i) Write the ratio orange counters : blue counters in its simplest form.

..... : ..... [2]

(ii) Some of the orange counters are removed.
The ratio orange counters : blue counters is now 1 : 2.

Work out how many orange counters have been removed.

..... [2]

(b) Another box contains 6 white counters, 3 black counters and 2 red counters only.

(i) One of the 11 counters is chosen from the box at random.

Write down the colour of the counter that is least likely to be chosen.

..... [1]

(ii) One of the 11 counters is chosen from the box at random.

Work out the probability that this counter is white.

..... [1]

(iii) One white counter is removed from the box of 11 counters.
A counter is now chosen from the box at random.

Work out the probability that this counter is white.

..... [1]

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(c) A different box contains 180 counters.
The counters are either yellow or green in the ratio

yellow counters : green counters = 5 : 1.

Work out the number of counters of each colour.

yellow .....

green ..... [2]

6 John and Asif take part in a 30 km cycle race.

(a) John starts his race at 10 15.
He takes $1\frac{1}{2}$ hours to complete the race.

(i) At what time does John complete the race?

..... [1]

(ii) Work out John's average speed, in km/h, for the 30 km race.

..... km/h [1]

(b) Asif completes the 30 km race at a speed of 16 km/h.

Work out the time, in hours and minutes, Asif takes to complete the race.

..... h ..... min [3]

7 **(a)** Find the missing terms in each of these sequences.

(i) ..... , 9, 17, 25, ... [2]

(ii) ..... , 8, 16, ... , 64 [2]

(iii) 35, 25, 16, 8, ... , ... [2]

(iv) ..... , $2x-4$, $3x-9$, $4x-14$, ... [2]

(b) The nth term of another sequence is n^2+n.

Find the first three terms of this sequence.

..... , ... , ... [2]

(c) Find the nth term of this sequence.

1, 5, 9, 13, ...

..... [2]

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8 **(a)** **(i)** Rearrange this formula to make d the subject.

$$C = \pi d$$

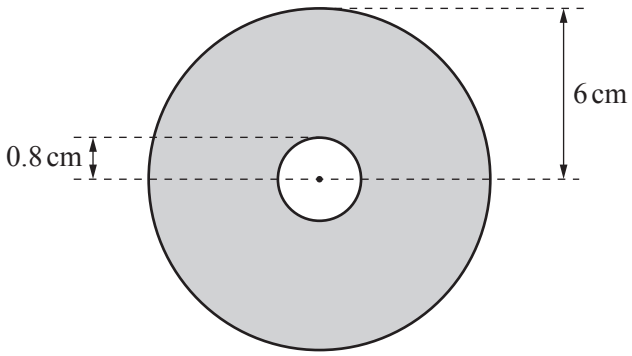
$d =$ ..... [1]

(ii) A circle has a circumference of 2 metres.

Work out the diameter of this circle.
Give your answer in centimetres, correct to the nearest whole number.

..... cm [3]

(b) A CD is a ring with inner radius 0.8 cm and outer radius 6 cm.



Find the area of the CD, shown shaded.

..... cm^2 [4]

9 **(a)** Factorise completely.

$12x + 16$

..... [2]

(b) Multiply out the brackets.

$2x(3x - 5)$

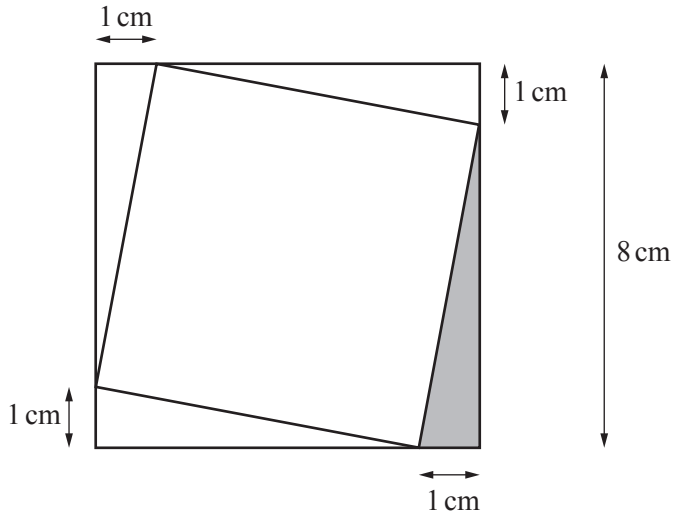
..... [2]

(c) Solve.

$8(2x + 3) = 48$

$x =$ ..... [3]

10 A square has side 8 cm.
A small square is drawn inside this larger square so that the corners of the small square touch the sides of the larger square.



NOT TO SCALE

(a) (i) Calculate the area of the shaded triangle.

.....cm^2 [2]

(ii) Using your answer to **part (a)(i)**, calculate the area of the small square.

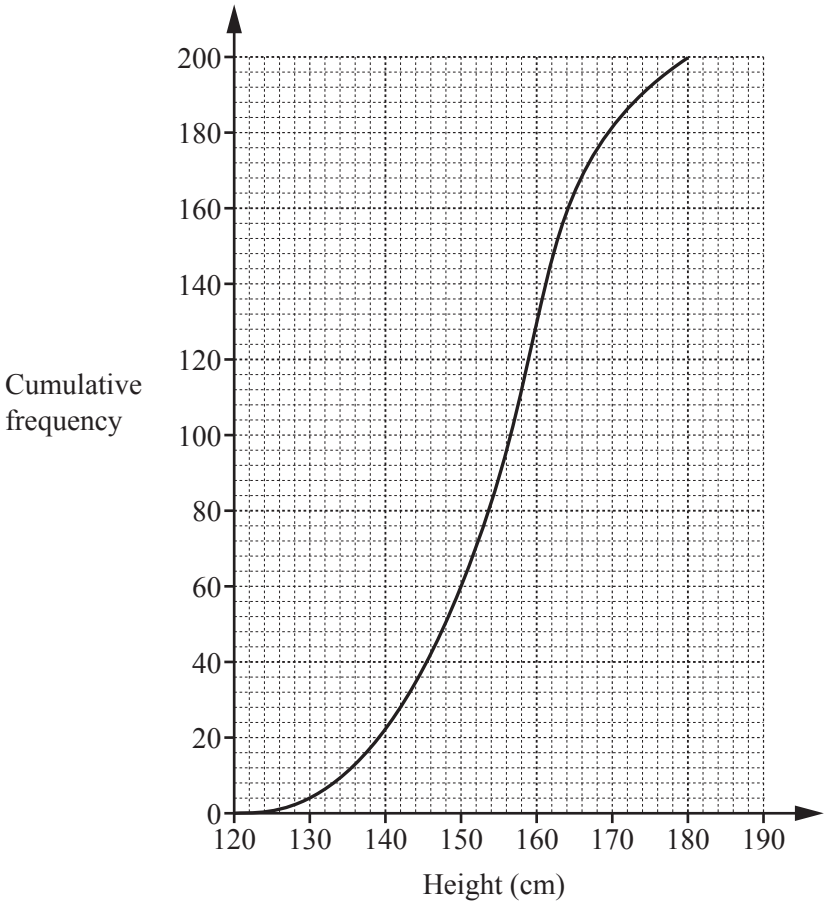
.....cm^2 [2]

(b) Calculate the perimeter of the small square.

..... cm [3]

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11 The cumulative frequency curve shows the heights, in cm, of 200 girls.



(a) Find the median height.

..... cm [1]

(b) Work out the inter-quartile range of the heights.

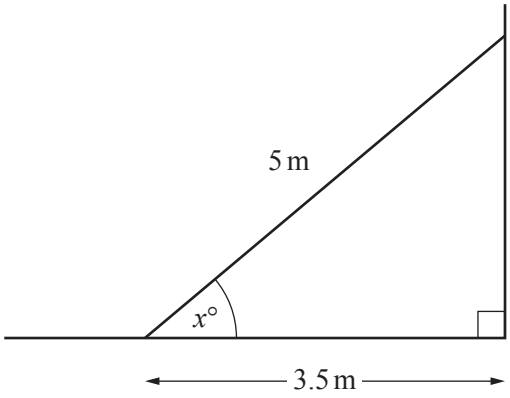
..... cm [2]

(c) Find the number of girls with a height of 160 cm or less.

..... [1]

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12 (a)



NOT TO SCALE

The diagram shows a ladder, 5 m long, leaning against a vertical wall.
The bottom of the ladder is on horizontal ground, 3.5 m from the wall.

Use trigonometry to find the value of x.

$x =$ ..... [2]

(b) A different ladder leans against the same wall.
This ladder makes an angle of 49° with the ground and touches the wall 4 m above the ground.

Use trigonometry to find the length of this ladder.
Include a labelled sketch in your working.

..... m [4]

Questions 13 and 14 are printed on the next page.

13 A painting is valued at \$2400.
The value of the painting increases by 5% each year.

Find the value of the painting at the end of 3 years.

\$ ..... [4]

14 A curve has equation $y = x^2 + x - 6$.

(a) Find the co-ordinates of the points where this curve crosses

(i) the y-axis,

(..... , ...) [1]

(ii) the x-axis.

(..... , ...) and (..... , ...) [2]

(b) Find the co-ordinates of the local minimum.

(..... , ...) [2]

(c) Find the equation of the line of symmetry of the curve.

..... [2]

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