Cambridge Assessment
International Education

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CANDIDATE NAME

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CAMBRIDGE INTERNATIONAL MATHEMATICS **0607/22**

Paper 2 (Extended) **May/June 2021**

45 minutes

You must answer on the question paper.

You will need: Geometrical instruments

INSTRUCTIONS
- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- Calculators must **not** be used in this paper.
- You may use tracing paper.
- You must show all necessary working clearly and you will be given marks for correct methods even if your answer is incorrect.
- All answers should be given in their simplest form.

INFORMATION
- The total mark for this paper is 40.
- The number of marks for each question or part question is shown in brackets [ ].

[Turn over

2

Formula List

For the equation $ax^2 + bx + c = 0$ $\qquad x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Curved surface area, A, of cylinder of radius r, height h. $\qquad A = 2\pi rh$

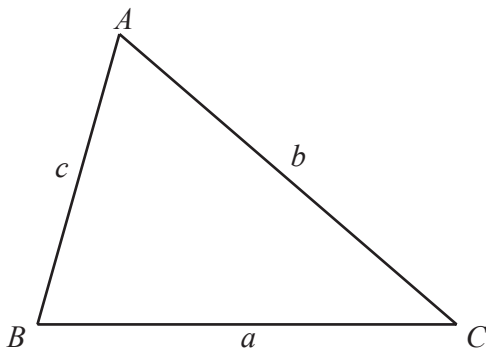Curved surface area, A, of cone of radius r, sloping edge l. $\qquad A = \pi rl$

Curved surface area, A, of sphere of radius r. $\qquad A = 4\pi r^2$

Volume, V, of pyramid, base area A, height h. $\qquad V = \dfrac{1}{3}Ah$

Volume, V, of cylinder of radius r, height h. $\qquad V = \pi r^2 h$

Volume, V, of cone of radius r, height h. $\qquad V = \dfrac{1}{3}\pi r^2 h$

Volume, V, of sphere of radius r. $\qquad V = \dfrac{4}{3}\pi r^3$

$$\dfrac{a}{\sin A} = \dfrac{b}{\sin B} = \dfrac{c}{\sin C}$$

$$a^2 = b^2 + c^2 - 2bc\cos A$$

$$\text{Area} = \dfrac{1}{2}bc\sin A$$
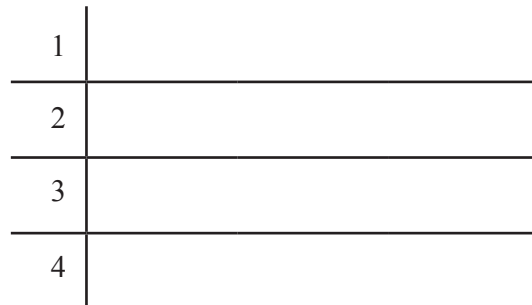
3

Answer **all** the questions.

1   Work out $\dfrac{3.6}{0.004}$.

.... [1]

2   These are the masses, in kilograms, of 16 newborn babies.

2.5	3.2	3.8	3.2	1.9	3.4	1.7	4.1
3.0	2.8	4.0	2.7	3.9	2.7	4.1	3.7

Complete the ordered stem-and-leaf diagram for the masses.

1	
2	
3	
4	

Key: 3 | 2 = 3.2

[2]

3   Work out $2\dfrac{1}{2} \div 3\dfrac{1}{4}$.

Give your answer as a fraction in its simplest form.

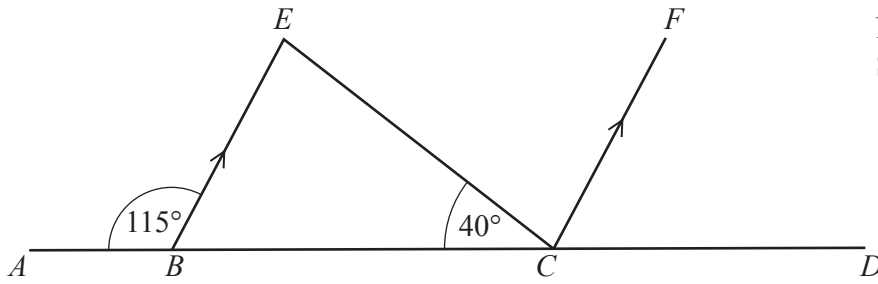.. [3]

4   Insert **two** pairs of brackets to make this statement correct.

$$3 \ \times \ 7 \ - \ 3 \ + \ 4 \ \times \ 2 \ = \ 32$$

[1]

5

E   F   NOT TO
                      SCALE

115°   40°

A   B   C   D

ABCD is a straight line and *BE* is parallel to *CF*.

Find angle *ECF*.

Angle *ECF* = ... [2]

6 **(a)** Factorise $a^2 - b^2$.

.... [1]

(b) Work out $5.37^2 - 4.63^2$.

.... [2]

7 Solve $2x + 3 < 5x - 12$.

.... [2]

8 Expand and simplify $(2\sqrt{3} - 5)(4 + \sqrt{3})$.

.... [2]

5

9

NOT TO SCALE

A

B

84°
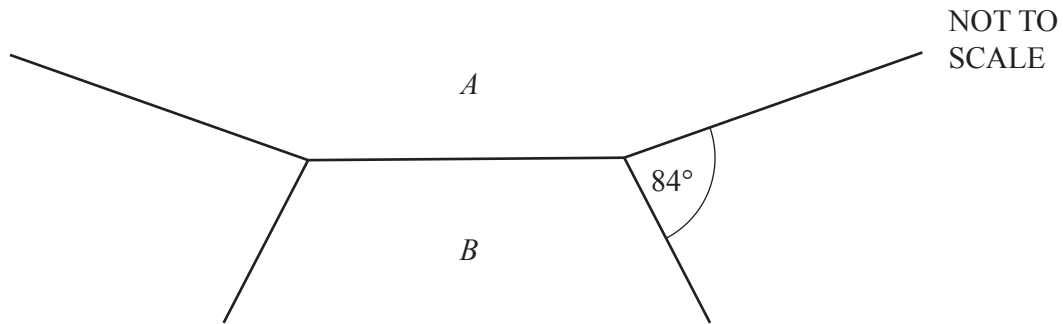
The diagram shows part of polygon *A* and part of polygon *B*.
A is a regular polygon with *n* sides.
B is a regular hexagon.

Find the value of *n*.

$n =$ .... [3]

10 $c = 4 \times 10^7$ $d = 5.8 \times 10^6$

Work out, giving your answers in standard form,

(a) c^2 ,

.... [2]

(b) $c - d$.

.... [2]

6

11 $y = \dfrac{2}{x+3}$

Rearrange the formula to make x the subject.

$x =$ .... [3]

12
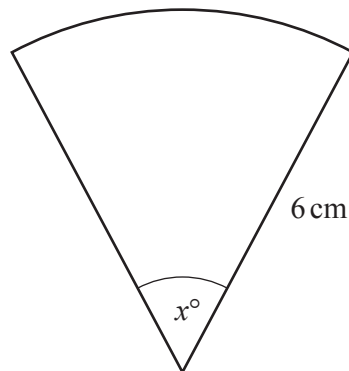
NOT TO
SCALE

The area of this sector is $5\pi \, \text{cm}^2$.

Find the value of x.

$x =$ .... [3]

13 The heights, h cm, of 100 plants are measured.
The table shows the results.

Height, h cm	Frequency
$0 < h \leqslant 40$	15
$40 < h \leqslant 80$	40
$80 < h \leqslant 120$	45

Calculate an estimate for the mean height of the plants.

.... cm [3]

14

NOT TO
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$k\sqrt{3}$ cm

30°

12 cm
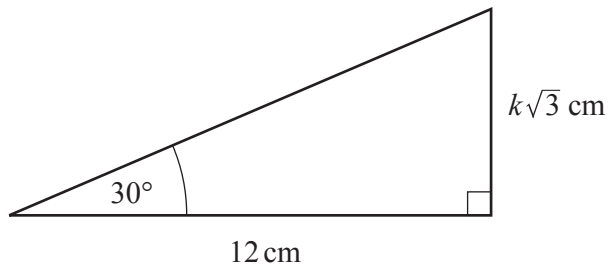
Find the value of k.

$k =$ .... [3]

Questions 15 and 16 are printed on the next page.

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15
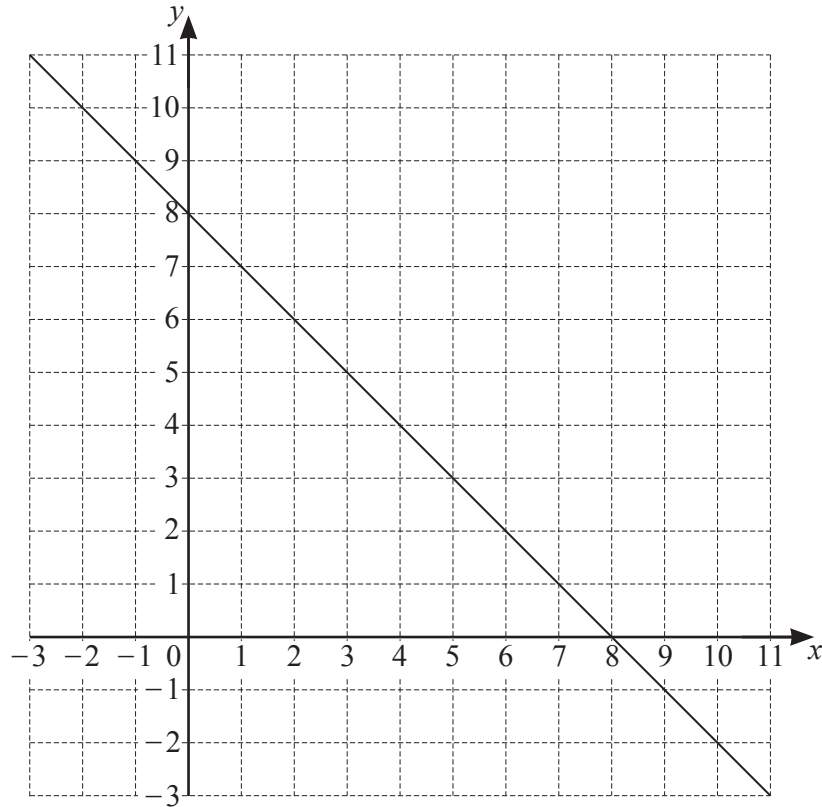
The diagram shows the line $x + y = 8$.

On the diagram, show clearly the region defined by these inequalities.

$$x + y \leqslant 8 \qquad\qquad x \geqslant 2 \qquad\qquad y \leqslant 3$$

[2]

16 Simplify $\dfrac{x^2 y - 3xy}{x^2 - 2x - 3}$.

.... [3]