

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

| CANDIDATE NAME | | | |
|-----------------------|-----------------------|------------------------|---------------|
| CENTRE NUMBER | | CANDIDATE NUMBER | |
| MATHEMATICS | | | 0580/12 |
| Paper 1 (Core) | | | May/June 2013 |
| | | | 1 hour |
| Candidates answer or | n the Question Paper. | | |
| Additional Materials: | Electronic calculator | Geometrical instrument | ts |

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.

You may use a pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

If working is needed for any question it must be shown below that question.

Tracing paper (optional)

Electronic calculators should be used.

If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For π , use either your calculator value or 3.142.

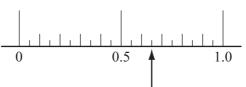
At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

The total of the marks for this paper is 56.



1



For Examiner's Use

| | | | | Answer . | | [1] |
|---|-----------------------------|----------------|------|----------|------------|-----|
| 2 | 100 | 164 | 200 | 343 | 999 | |
| | Write down the cube number | | | 343 | <i>)))</i> | |
| | | | | Answer . | | [1] |
| 3 | Write down the next prime | number after | 23. | | | |
| | | | | Answer . | | [1] |
| 4 | Calculate the number of sec | conds in 3 hou | ırs. | | | |



The diagram shows the net of a solid.

Write down the mathematical name of this solid.

| Answer | Γ. | 1 | Ī |
|--------|-------|---|---|
| Answei | 1 | 1 | |

6 Bryony asks her friends how many pets they have. She is going to use this table to record her results.

| Number of pets | Frequency |
|----------------|-----------|
| 0-1 | |
| 1-2 | |
| 2-3 | |
| 3 or more | |

| Expl | lain | W | nat | 1S | wrong | with | this | frec | uency | tab | le. |
|------|------|---|-----|----|-------|------|------|------|-------|-----|-----|
| | | | | | | | | | | | |

| Answer | |
|--------|--|
| | |

| [1 |
|----|
|----|

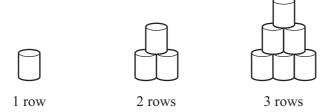
7 **(a)** Draw an acute angle. Label the acute angle with the letter *a*.

[1]

(b) Write down the mathematical name of angle b.



Answer(b) [1]



Complete the table for 4 rows and 5 rows.

| Number of rows | 1 | 2 | 3 | 4 | 5 |
|----------------|---|---|---|---|---|
| Number of cans | 1 | 3 | 6 | | |

[2]

9 The probability that the school hockey team will win its next match is 0.45. The probability that it will lose its next match is 0.3.

Work out the probability that the school hockey team will draw its next match.

10

$$\mathbf{a} = \begin{pmatrix} 4 \\ 7 \end{pmatrix} \qquad \mathbf{b} = \begin{pmatrix} -5 \\ 2 \end{pmatrix}$$

Write each of the following as a single vector.

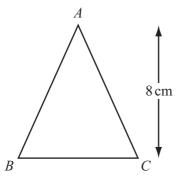
(a) 6a

Answer(a)
$$\left(\right)$$
 [1]

(b) a + b

Answer(b)
$$\left(\begin{array}{c} \\ \end{array}\right)$$
 [1]

For Examiner's Use



NOT TO SCALE

Triangle ABC has a height of 8 cm and an area of 42 cm².

Calculate the length of BC.

Answer
$$BC =$$
 cm [2]

12 (a) Use your calculator to work out $\sqrt{65} - 1.7^2$.

Write down all the numbers displayed on your calculator.

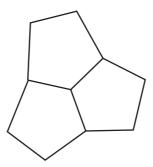
(b) Write your answer to **part (a)** correct to 2 significant figures.

| For |
|------------|
| Examiner'. |
| II_{co} |

- 13 The exterior angle of a regular pentagon is 72°.
 - (a) Write down the interior angle of a regular pentagon.

| <i>Answer(a)</i> | [1] |
|------------------|-----|
|------------------|-----|

(b)



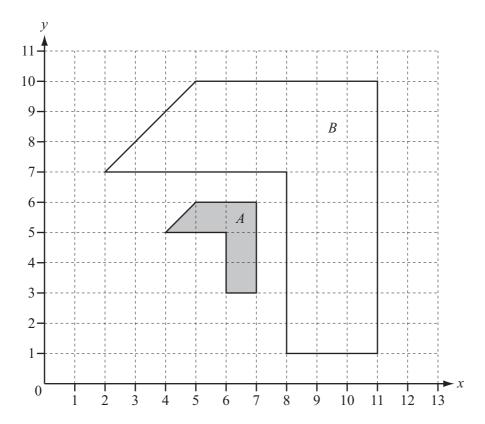
The diagram shows three pentagons which fit together.

Uta thinks that three **regular** pentagons will fit together in the same way.

Explain how you know she is wrong.

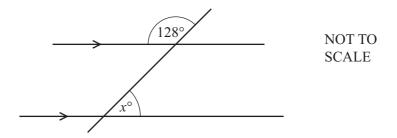
| Answer(b) | | | | |
|-----------|------|------|------|------|
| () | | | | |
| | | | | Г1 Т |
| | | | | 1 |

14



Describe fully the **single** transformation that maps shape *A* onto shape *B*.

15 (a)



A straight line intersects two parallel lines as shown.

Find the value of x.



NOT TO SCALE

Calculate the value of y.

$$Answer(b) y = \dots [1]$$

16 (a) The average distance of the Moon from the Earth is 384 400 km.

Write this distance in standard form.

Answer(a) km [1]

(b) Calculate $(4.3 \times 10^8) + (2.5 \times 10^7)$.

Give your answer in standard form.

Answer(b) [2]

For Examiner's Use

Write one of the three symbols between each pair of numbers.

Each symbol can be used more than once.

18 (a)

$$-3$$
 -4 -7 2 5

Choose three different numbers from the list to complete this calculation.

$$+ \dots + \dots + \dots = -6$$

(b) Find the value of 5x - 3y when x = -2 and y = 4.

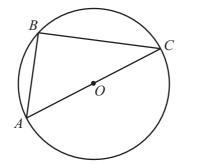
© UCLES 2013

19 Without using a calculator, work out $\frac{6}{7} \div 1\frac{2}{3}$.

Write down all the steps in your working.



20



NOT TO SCALE

A, B and C are points on the circumference of a circle centre O. AC is a straight line.

(a) Explain why angle ABC is 90°.

| Ans [.] | wer(a) | [1 | 1 | |
|------------------|-----------|---------|---|--|
| 11110 | ,, 0, (0) | 1 * | | |

(b) The **diameter** of the circle is 3 cm.

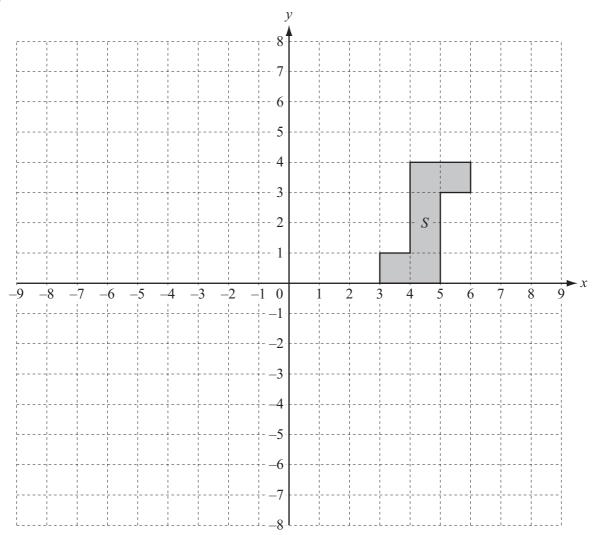
Calculate the area of this circle.

For Examiner's Use

| | Carol invests \$6250 at a rate of 2% per | year compound interest. |
|----|---|-------------------------|
| | Calculate the total amount Carol has af | fter 3 years. |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | 4 0 |
| | | Answer \$ [3] |
| 22 | Solve the equation. | |
| | 5(2y - 17) = 60 | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | Answer $y = \dots [3]$ |
| | | |
| | | |
| 23 | (a) Simplify y^0 . | |
| 23 | (a) Simplify y^0 . | Answer(a)[1] |
| 23 | | |
| 23 | (a) Simplify y^0 . (b) Make v the subject of $E = \frac{1}{2}mv^2$. | |
| 23 | | |
| 23 | | |
| 23 | | |
| 23 | | |
| 23 | | |
| 23 | | |
| 23 | | |
| 23 | | |
| 23 | | |

24

For Examiner's Use



(a) On the grid

(i) plot the point
$$(-5, -2)$$
 and label it P , [1]

(ii) draw the line y = 2x. [1]

(b) (i) Write down the order of rotational symmetry of shape *S*.

Answer(b)(i)[1]

(ii) Draw the image of shape S after a rotation through 90° clockwise about (0, 0). [2]

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.