Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

8836784786

MATHEMATICS **0580/11**

Paper 1 (Core) **October/November 2016**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Tracing paper (optional)
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.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, 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.
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.

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The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **10** printed pages and **2** blank pages.

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1 Write 30 000 000 in words.

.....[1]

2 Write down the temperature which is 5 °C below –2 °C.

..... °C [1]

3 Write \$0.70 as a fraction of \$5.60, giving your answer in its lowest terms.

.....[1]

4 Write 0.040 190 7 correct to

(a) 3 significant figures,

.....[1]

(b) 3 decimal places.

.....[1]

5 In triangle ABC, $AB = 7$ cm, $BC = 4$ cm and $AC = 6$ cm.

Using a ruler and compasses only, construct triangle ABC.
The side BC has been drawn for you.

[2]

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6 Write the following in order of size, smallest first.

$\frac{7}{12}$ $\sqrt{0.33}$ 58% $\frac{18}{31}$ 0.59

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

7 $\mathbf{a} = \begin{pmatrix} 5 \\ -6 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -2 \\ 4 \end{pmatrix}$

Work out $2\mathbf{a} - \mathbf{b}$.

$\begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [2]

8 Work out $\frac{2}{3} - \frac{1}{4}$, giving your answer as a fraction in its lowest terms.

Do not use a calculator and show all the steps of your working.

..... [2]

9 A circular pool has radius 8 m.

Calculate the circumference of the pool.

..... m [2]

10 $\frac{2}{9}$ of an amount is 48.

Calculate the original amount.

..... [2]

11

E L E P H A N T

Francesca chooses a letter at random from this word.

(a) Write down the letter she is most likely to choose.

..... [1]

(b) Write down the probability that she chooses the letter R.

..... [1]

12 Write down the type of correlation there is between

(a) the number of litres of fuel used by a car and the distance it travels,

..... [1]

(b) the test score of a student and their shoe size.

..... [1]

13 Eleven children attempt to solve a puzzle.
This list shows the number of attempts each child made.

7 6 8 5 6 5 7 8 3 8 1

(a) Write down the mode.

..... [1]

(b) Find the median.

..... [2]

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14 Calculate.

(a) $\frac{4}{5}$ of 90

..... [1]

(b) $\frac{7.1 \times 4.8}{15.3 - 9.62}$

..... [1]

(c) $\sqrt[3]{4913}$

..... [1]

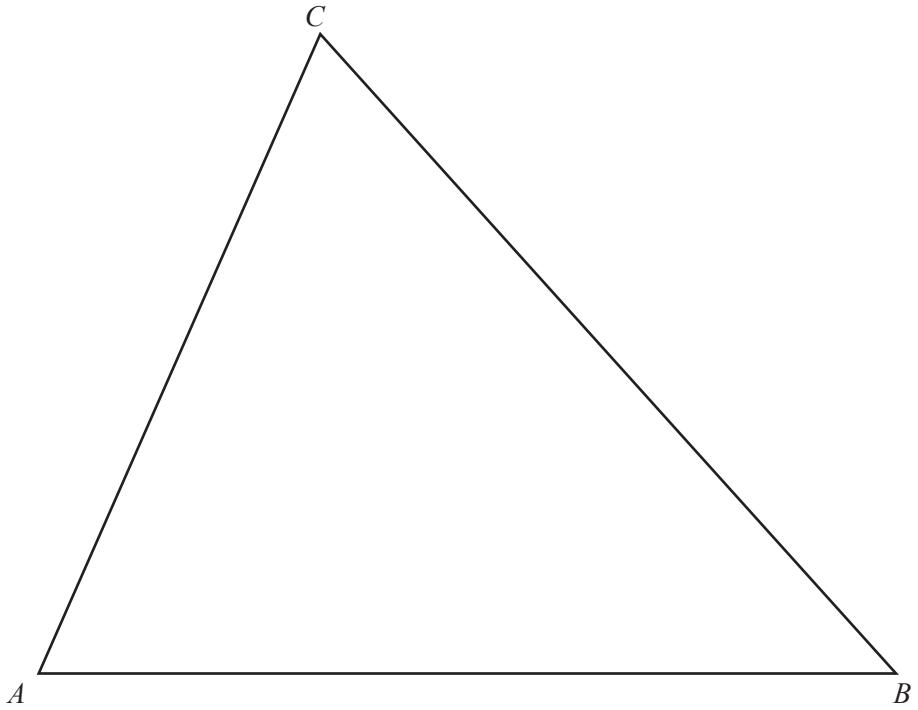
15 Solve the simultaneous equations.
You must show all your working.

$$2x + 3y = 13$$
$$x + 2y = 9$$

$x =$ .....

$y =$ ..... [3]

16



(a) Construct the locus of points, inside the triangle, that are 5 cm from B. [1]

(b) Construct the locus of points, inside the triangle, that are equidistant from AB and BC. [2]

(c) Shade the region, inside the triangle, containing points that are

- more than 5 cm from B

and

- nearer to AB than to BC. [1]

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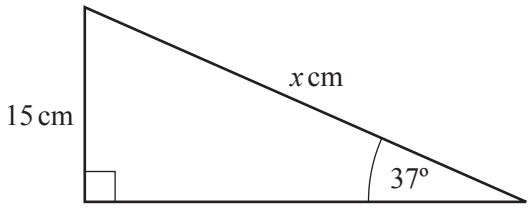


NOT TO SCALE

Using trigonometry, calculate the value of x.

x = ... [3]

18 Find the nth term of each sequence.

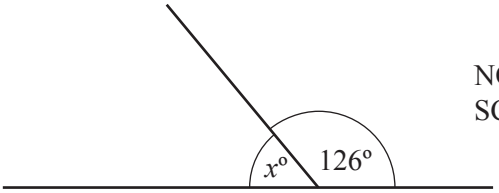
(a) 7, 13, 19, 25, 31, …

..... [2]

(b) 9, 16, 25, 36, 49, …

..... [2]

19 (a)

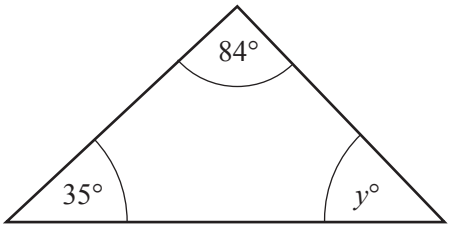


NOT TO SCALE

Work out the value of x.

x = ... [1]

(b)

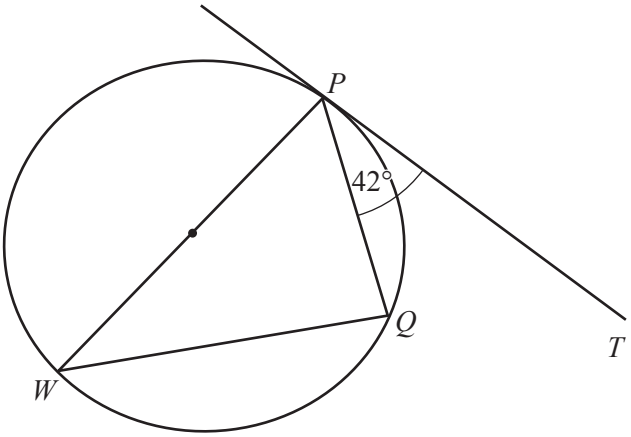


NOT TO SCALE

Work out the value of y, giving a reason for your answer.

y = ... because ..... [2]

(c)



NOT TO SCALE

In the diagram, PT is a tangent to the circle at P.
PW is a diameter and angle $TPQ = 42°$.

Find

(i) angle WPQ,

Angle WPQ = ... [1]

(ii) angle PWQ.

Angle PWQ = ... [1]

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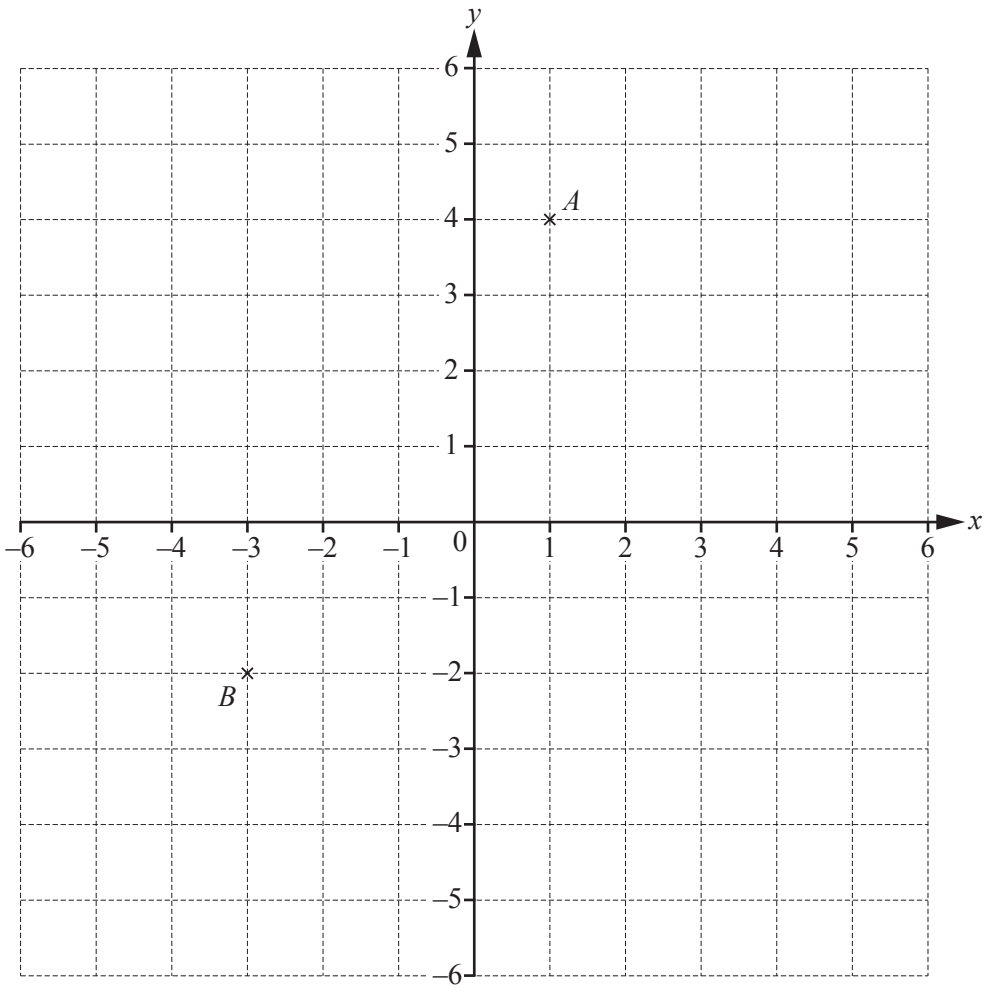

(a) Write down the co-ordinates of point A.

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

(b) Plot the point (5, –2).
Label this point C. [1]

(c) Write down the mathematical name of triangle ABC.

..... [1]

(d) Write $\overrightarrow{AB}$ as a column vector.

$\overrightarrow{AB} = \begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

(e) $\overrightarrow{BD} = \begin{pmatrix} -2 \\ 5 \end{pmatrix}$

Write down the co-ordinates of point D.

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

21 **(a)** Solve the equation.

$$4x + 3 = 11$$

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

(b) Make x the subject of the formula $y = 4x^2 - 2$.

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

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