UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

MATHEMATICS **0580/11**

Paper 1 (Core) **May/June 2012**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Mathematical tables (optional)
Geometrical instruments
Tracing paper (optional)

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.
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.

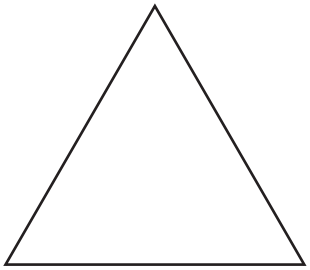
This document consists of **12** printed pages.

1 Kyle scores 84 marks out of 96 in an examination.

Work out his percentage mark.

Answer ..... % [1]

2



The lengths of each side of this triangle are the same.

(a) Write down the mathematical name for this triangle.

Answer(a) ..... [1]

(b) Write down the number of lines of symmetry for the triangle.

Answer(b) ..... [1]

---

3 Work out the number of minutes from 18 27 on Tuesday to 03 19 on Wednesday.

Answer ..... min [2]

---

4 Gregor changes \$700 into euros (€) when the rate is €1 = \$1.4131 .

Calculate the amount he receives.

Answer € ..... [2]

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5 $w = 3a - 5b$

Calculate w when $a = 2$ and $b = -3$.

Answer $w =$ ..... [2]

---

6 One bracelet costs 85 cents and one necklace costs \$7.50 .

Write down an expression, **in dollars**, for the total cost of b bracelets and n necklaces.

Answer \$ ..... [2]

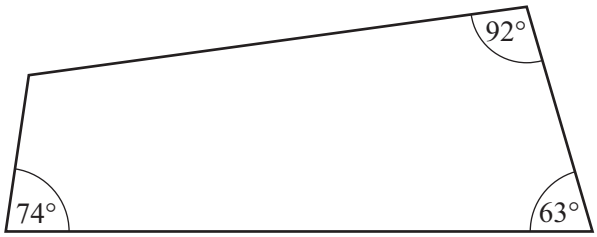
---

7 **(a)** A quadrilateral has four sides of equal length and two pairs of equal angles.

Write down the mathematical name for this quadrilateral.

Answer(a) ..... [1]

(b)



NOT TO SCALE

Three of the angles in a quadrilateral are 63°, 74° and 92°.

Work out the size of the fourth angle.

Answer(b) ..... [1]

---

8 Solve the equation $4x - 2 = 7$.

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

---

9 The temperature at the top of a mountain is –12°C.
The temperature at the bottom of the mountain is 18°C.

(a) Work out the difference in these temperatures.

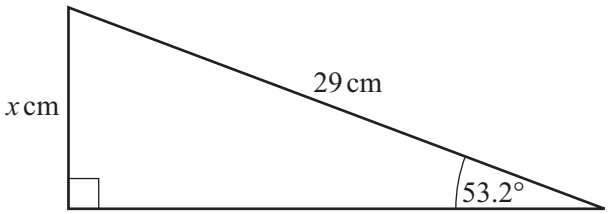
Answer(a) ..... °C [1]

(b) 18°C is given correct to the nearest degree.

Write down the upper bound for this temperature.

Answer(b) ..... °C [1]

10



NOT TO SCALE

Calculate the value of x.

Answer x = ... [2]

---

11 **(a)** Write down all the factors of 15.

Answer(a) ..... [1]

(b) Factorise completely.

$15p^2 + 24pt$

Answer(b) ..... [2]

---

12 Triangle ABC has sides $AB = 40$ m, $BC = 25$ m and $AC = 35$ m.

Using a scale of 1 cm to represent 5 m, construct triangle ABC.
The construction must be completed using a ruler and compasses only.
All construction arcs must be clearly shown.

Answer

A *B*

[3]

---

13 Shania invests \$750 at a rate of $2\frac{1}{2}$ % per year simple interest.

Calculate the **total** amount Shania has after 5 years.

Answer \$ ..... [3]

---

14 **Without using your calculator**, work out $1\frac{5}{6}+\frac{9}{10}$.

You must show your working and give your answer as a mixed number in its simplest form.

Answer ..... [3]

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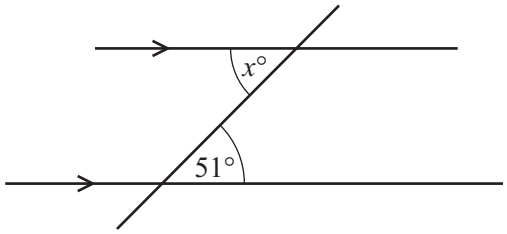
15 **(a)** Find the value of x.

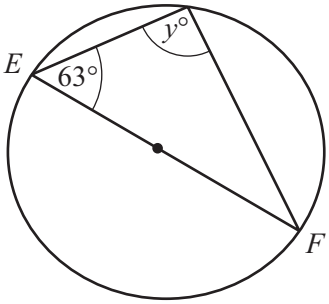


NOT TO SCALE

Answer(a) $x =$ ..... [1]

(b) EF is a diameter of the circle.

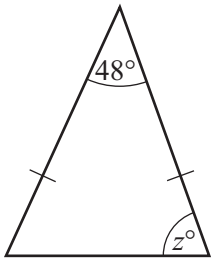
Find the value of y.



NOT TO SCALE

Answer(b) $y =$ ..... [1]

(c) Find the value of z in this isosceles triangle.



NOT TO SCALE

Answer(c) $z =$ ..... [1]

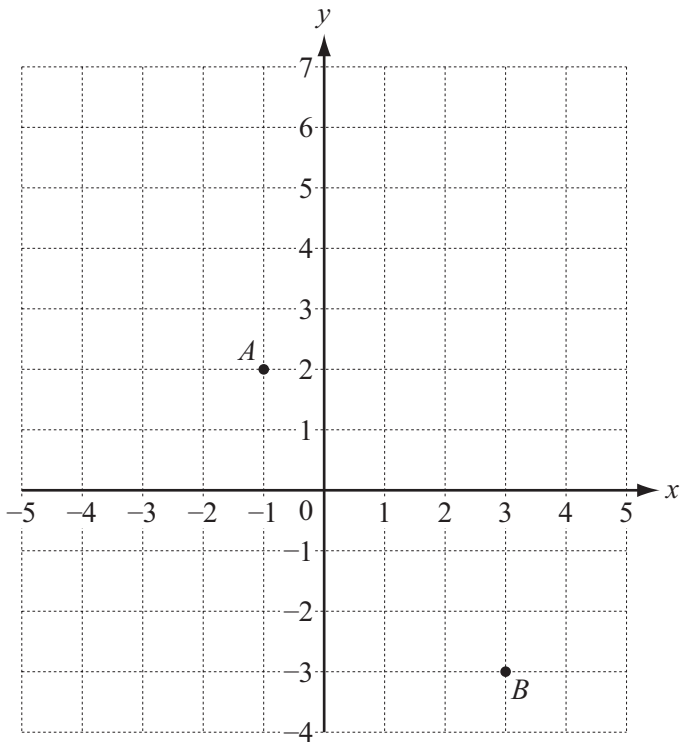
16 Solve the simultaneous equations.

$$3x + 5y = 24$$
$$x + 7y = 56$$

Answer $x =$ .....

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

17



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

Answer(a) (..... , ...) [1]

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

Answer(b) $\overrightarrow{AB} =$ $\begin{pmatrix} \\ \\ \end{pmatrix}$ [1]

(c) $\overrightarrow{AC} = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$

Write down the co-ordinates of C.

Answer(c) (..... , ...) [1]

18 **(a)** Write 326.413 correct to 2 significant figures.

Answer(a) ..... [1]

(b) Find the square root of one million.

Answer(b) ..... [2]

(c) Calculate

$$\frac{64.3 + 7.465}{5.2 - 3.65}.$$

Answer(c) ..... [1]

---

19 **(a)** Simplify

$$4p + 3q + 5p - 7q.$$

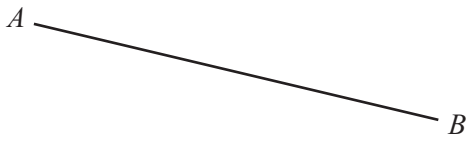
Answer(a) ..... [2]

(b) Make x the subject of this formula.

$$g = 2x + y$$

Answer(b) $x =$ ..... [2]

20



(a) **Using a straight edge and compasses only**, construct the perpendicular bisector of AB. Show all your construction arcs. [2]

(b) Draw the locus of points that are 4 cm from A. [1]

(c) Shade the region which is less than 4 cm from A and nearer to B than to A. [1]

Question 21 is printed on the next page.

21

13 17 13 17 19 13 31 21 29

(a) For the numbers above, find

(i) the range,

Answer(a)(i) ..... [1]

(ii) the median.

Answer(a)(ii) ..... [2]

(b) Write down the only number in the list which is **not** a prime number.

Answer(b) ..... [1]