



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

CANDIDATE  
NAME

CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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**MATHEMATICS**

**0581/11**

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  $\pi$ , 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.



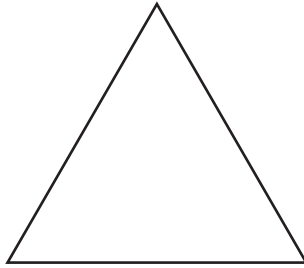
- 1 Kyle scores 84 marks out of 96 in an examination.

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]

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

Answer ..... min [2]

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- 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]

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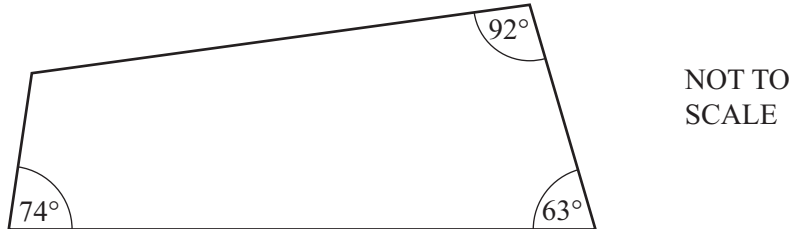
For  
Examiner's  
Use

- 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)



Three of the angles in a quadrilateral are  $63^\circ$ ,  $74^\circ$  and  $92^\circ$ .

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  $-12^\circ\text{C}$ .  
The temperature at the bottom of the mountain is  $18^\circ\text{C}$ .

(a) Work out the difference in these temperatures.

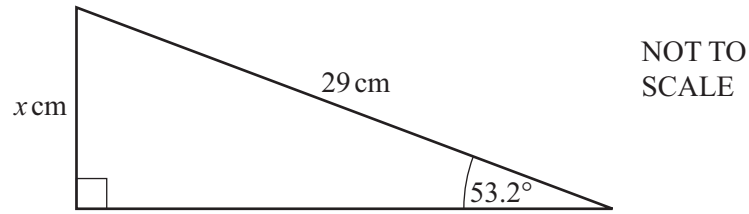
Answer(a) .....  $^\circ\text{C}$  [1]

(b)  $18^\circ\text{C}$  is given correct to the nearest degree.

Write down the upper bound for this temperature.

Answer(b) .....  $^\circ\text{C}$  [1]

10



Calculate the value of  $x$ .

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

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

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

(b) Factorise completely.

$$15p^2 + 24pt$$

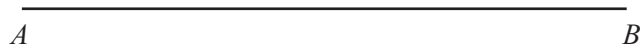
Answer(b) ..... [2]

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



[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.

For  
Examiner's  
Use

Answer \$ ..... [3]

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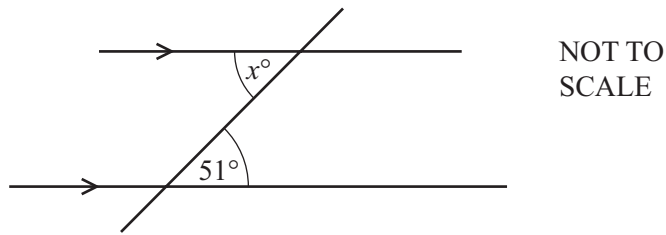
- 14 **Without using your calculator**, work out  $1\frac{5}{6} + \frac{9}{10}$ .

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

Answer ..... [3]

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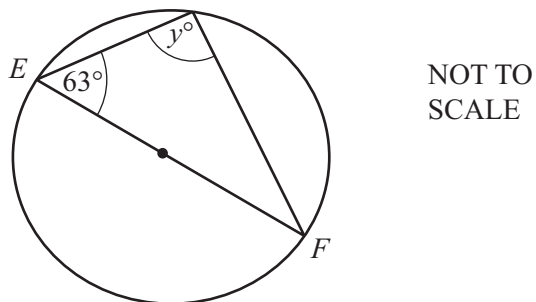
- 15 (a) Find the value of  $x$ .



Answer(a)  $x = \dots\dots\dots$  [1]

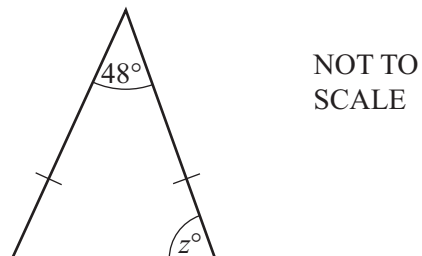
- (b)  $EF$  is a diameter of the circle.

Find the value of  $y$ .



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

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



Answer(c)  $z = \dots\dots\dots$  [1]

For  
Examiner's  
Use

16 Solve the simultaneous equations.

$$3x + 5y = 24$$

$$x + 7y = 56$$

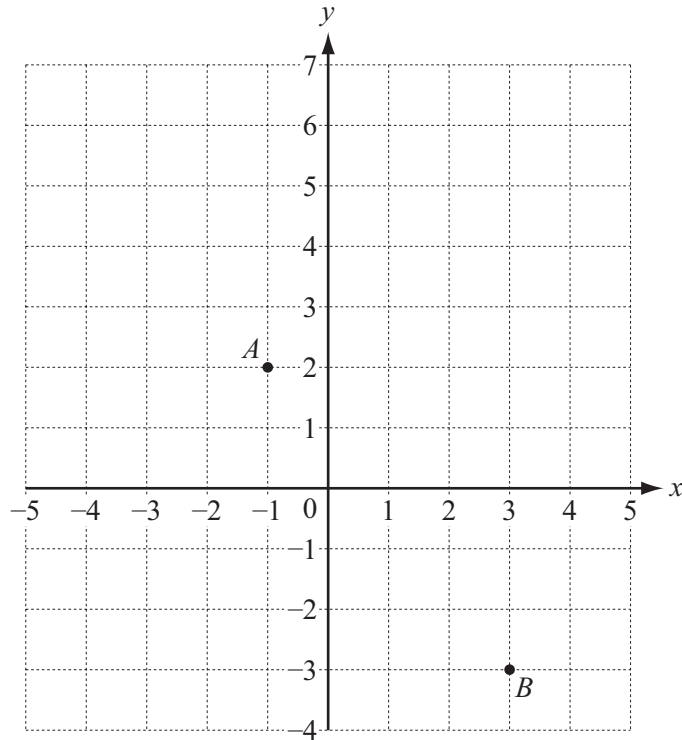
*For  
Examiner's  
Use*

*Answer*  $x =$  .....

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

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

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

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

Answer(b)  $\vec{AB} = \begin{pmatrix} \phantom{0} \\ \phantom{0} \end{pmatrix}$  [1]

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

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

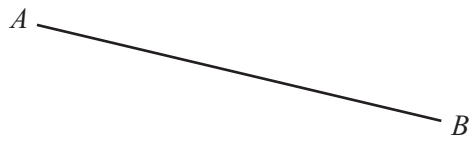
$$4p + 3q + 5p - 7q.$$

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

(b) Make  $x$  the subject of this formula.

$$g = 2x + y$$

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



- (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

For  
Examiner's  
Use

(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]

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