

# UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

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CANDIDATE NAME									
CENTRE NUMBER						ANDIDA IUMBER			

MATHEMATICS 0581/11

Paper 1 (Core) May/June 2012

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator Geometrical instruments

Mathematical tables (optional)

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.

						200				
1	Kyle	scores	84	marks	out	of 96	in	an	examination	n.

1	Kyle scores 84 marks out of 96 in an examination.  Work out his percentage mark.	For iner's
	Answer% [1]	
2		

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

(a)	Write do	wn the r	nathematical	name	for this	triangle
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Answer(a) [1]

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

Answer(b) [1]

Work out the number of minutes from 1827 on Tuesday to 0319 on Wednesday. 3

> Answer [2]

42				
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•	3	DaCarr		
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			Origi	1
		•	3	6

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

Calculate the amount he receives.

1 C	[2]
Answer E	 [4]

5 
$$w = 3a - 5b$$

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

$$Answer w =$$
 [2]

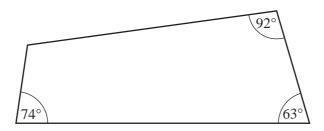
6 One bracelet costs 85 cents and one necklace costs \$7.50.

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

Write down the mathematical name for this quadrilateral.

Answer(a)	[1

**(b)** 



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

Work out the size of the fourth angle.

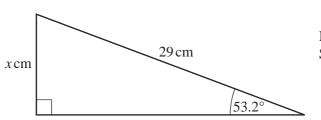
8 Solve the equation 4x - 2 = 7.

$$Answer x = [2]$$

- 9 The temperature at the top of a mountain is  $-12^{\circ}$ C. The temperature at the bottom of the mountain is  $18^{\circ}$ C.
  - (a) Work out the difference in these temperatures.

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

Write down the upper bound for this temperature.



NOT TO **SCALE** 

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Calculate the value of *x*.

Answer x =	 [2]

(a) Write down all the factors of 15.

(b) Factorise completely.

$$15p^2 + 24pt$$

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



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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.

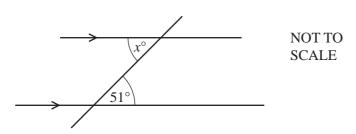
[3]

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]

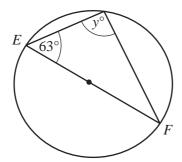
### 15 (a) Find the value of x.



Answer(a) x = [1]

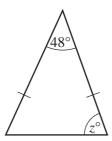
#### **(b)** *EF* is a diameter of the circle.

Find the value of *y*.



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



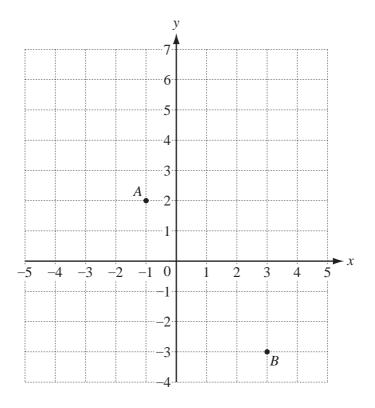
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16	Solve	the	simultaneous	equations.

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

Answer x =	
<i>y</i> =	 [3]

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

Answer(a) ( \_\_\_\_\_ , \_\_\_\_ ) [1]

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

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

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

Write down the co-ordinates of *C*.

			10	MMM, POR	2
18	(a)	Write 326.413 correct to 2 significant figure	es.		Call
	(b)	Find the square root of one million.	Answer(a)		B
	(c)	Calculate	Answer(b)		[2]
	(c)	$\frac{64.3 + 7.465}{5.2 - 3.65}$ .			
			Answer(c)	······	[1]
19	(a)	Simplify $4p + 3q + 5p - 7q.$			
			Answer(a)		[2]
	(b)	Make $x$ the subject of this formula.	=2x+y		
			Answer(b)	x =	[2]

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(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

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	13	17	13	17	19	13	31	21	=	29	For ine	er's
(a)	For the numbers a	above, f	ind								age	1
	(i) the range,											OM
						An	iswer(a	)(i)			[1]	
	(ii) the median.											
						An	iswer(a	)(ii)			[2]	
<b>(b)</b>	Write down the or	nly nun	nber in 1	the list	which i	s <b>not</b> a	prime 1	numb	er.			
							Answe	r(b)			[1]	