



# 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 2011

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.

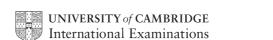
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

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.



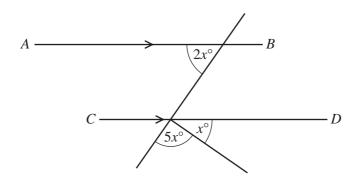
1

A concert hall has 1540 seats.

	Calculate the number of people in the hall when 55% of the seats are occupied.								
	Answer	[1]							
2	(a) Write down in figures the number twenty thousand three hundred and seventy six.								
	Answer(a)	[1]							
	Answer(b)	[1]							
3	For an equilateral triangle, write down								
	(a) the number of lines of symmetry,								
	(b) the order of rotational symmetry.	[1]							
	Answer(b)	[1]							
4	$A \longrightarrow B$								
	Write down the geometrical name for								
	(a) shape $A$ , $Answer(a)$	[1]							
	(b) shape $B$ .  Answer(b)	[1]							

5	Mark and Naomi share \$600 in the ratio Mark: Naomi =	5:1.		
	Calculate how much money Naomi receives.			
	Ansv	wer \$		[2]
6	Calculate the area of a circle with radius 6.28 centimetres.			
	Ansv	wer	cm <sup>2</sup>	[2]
7	The scale on a map is 1:20000.			
	Calculate the actual distance between two points which are 2.7 Give your answer in kilometres.	cm a	part on the map.	
	Ansv	wer	km	[2]
8	(a) Find m when $4^m \times 4^2 = 4^{12}$ .			
	Answer(c	a) m	=	[1]
	<b>(b)</b> Find <i>p</i> when $6^p \div 6^7 = 6^2$ .			
	Answer(l	b) p =	=	[1]

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For Examiner's Use

AB is parallel to CD. Calculate the value of x.

Answer x =	 [3]
Answer x =	 [3

NOT TO SCALE

10 Solve the simultaneous equations.

$$3x + y = 30$$
$$2x - 3y = 53$$

Answer x =

$$y =$$
 [3]

11 Without using your calculator, and leaving your answer as a fraction, work out

$$2\frac{1}{6} - \frac{7}{12}$$

You must show all your working.

12	(a)	Write 1738.279 correct to 1 decimal place.			
			Answer(a)		[1]
	<b>(b)</b>	Write 28 700 in standard form.			
			Answer(b)		[1]
	(c)	The mass of a ten-pin bowling ball is 7 kg to the near	est kilogram.		
		Write down the lower bound of the mass of the ball.			
			Answer(c)	kg	[1]
13	Pau	lo invests \$3000 at a rate of 4% per year <b>compound</b> in	nterest.		
		culate the <b>total</b> amount Paulo has after 2 years. e your answer correct to the nearest dollar.			
			Answer \$		[3]
14	A tr	ain leaves Barcelona at 2128 and takes 10 hours and 3	· 	reach Paris.	[3]
14	A tr		33 minutes to	reach Paris.	[3]
14		rain leaves Barcelona at 21 28 and takes 10 hours and 3 Calculate the time the next day when the train arrives	33 minutes to	reach Paris.	[3]
14			33 minutes to	reach Paris.	[3]
14			33 minutes to	reach Paris.	[3]
14		Calculate the time the next day when the train arrives	33 minutes to		
14			33 minutes to		
14	(a)	Calculate the time the next day when the train arrives	33 minutes to s in Paris.  Answer(a)		
14	(a)	Calculate the time the next day when the train arrives  The distance from Barcelona to Paris is 827 km.	33 minutes to s in Paris.  Answer(a)		
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15 (a) The table shows part of a railway timetable.

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Peartree	arrival time	1258	13 56	1454	15 52
Station	departure time	13 07	1405	15 03	1601

(	'n	Each	train	waits	the	same	number	οf	minutes	at ]	Peartree	Station
1		Lacii	uam	waits	uic	Same	Hullioci	Οī	minucs	ai.	i carucc	Station.

Write down how many minutes each train waits.

Answer(a)(i)	min	[1]

(ii) Janine is at Peartree Station at 3 pm.

At what time does the next train depart?

$$Answer(a)$$
(ii) [1]

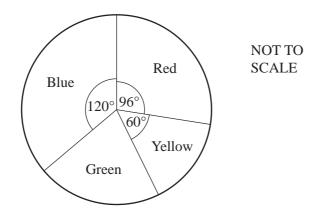
**(b)** The average temperature each month in Moscow and Helsinki is recorded. The table shows this information from January to June.

	January	February	March	April	May	June
Temperature in Moscow (°C)	-16	-14	-8	1	8	11
Temperature in Helsinki (°C)	<b>-</b> 9	-10	-7	-1	4	10

(i	) Find the	difference in	temperature	between	Moscow	and H	lelsinki ir	n January

Amornou(h)(i)	00	Γ17
Answer(b)(1)		

(ii) Find the increase in temperature in Helsinki from March to June.



In a survey a number of people chose their favourite colour.

The results are shown in the pie chart.

(a) Calculate the size of the sector angle for green.

Answer(a)	 [1]

**(b)** The number of people who chose red is 16.

Calculate the number who chose yellow.

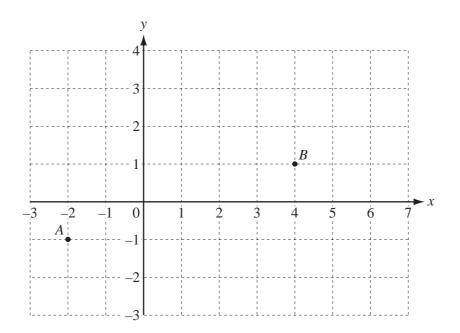
$$Answer(b)$$
 [1]

(c) Calculate the total number of people in the survey.

$$Answer(c)$$
 [1]

(d) Write down the fraction who chose red.

*Answer(d)* [1]



(a) Write down the vector  $\overrightarrow{AB}$ .

**(b)** 
$$\overrightarrow{BC} = \begin{pmatrix} -3 \\ 1 \end{pmatrix}$$

Mark the point C on the grid.

[1]

(c) Work out

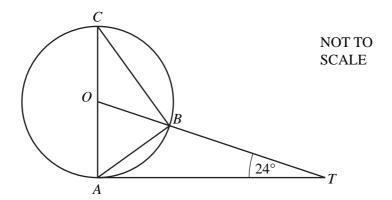
(i) 
$$\begin{pmatrix} -3 \\ 1 \end{pmatrix} + \begin{pmatrix} 7 \\ -4 \end{pmatrix}$$
,

(ii) 
$$4 \times \begin{pmatrix} -3 \\ 1 \end{pmatrix}$$
.

$$Answer(c)$$
(ii) [1]

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A, B and C are points on a circle, centre O.

TA is a tangent to the circle at A and OBT is a straight line.

AC is a diameter and angle  $OTA = 24^{\circ}$ .

### Calculate

(a) angle AOT,

$$Answer(a) \text{ Angle } AOT =$$
 [2]

**(b)** angle *BOC*,

$$Answer(b)$$
 Angle  $BOC =$  [1]

(c) angle OCB.

$$Answer(c) \text{ Angle } OCB =$$
 [1]

19	Piet, Rob and Sam collect model aeroplanes. Piet has x aeroplanes. Rob has 7 more aeroplanes than Piet. Sam has three times as many aeroplanes as Piet.		
	(a)	Write down an expression, in terms of $x$ , for	
		(i) the number of aeroplanes Rob has,	
		Answer(a)(i) [1	1]
		Answer(a)(ii) $Answer(a)$	l]
	<b>(b)</b>	The total number of aeroplanes is 32.	
		(i) Use the information in <b>part</b> (a) to write down an equation in $x$ .	
		Answer(b)(i)[1	1]
	(c)	Answer(b)(ii) x =  [2] Write down the number of aeroplanes Rob has.	2]
		Answer(c)[1	1]

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