

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

enep abers

*	
7	
6	
4	
4	
6	
9	
∞	
6	
œ	
œ	

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

MATHEMATICS 0580/12

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.

For Examiner's Use

1	Work out the value of	$\frac{48}{19.1 - 3.5 \times 4.6}$ .				
				Answer		[1]
2	Write the following in o	order of size, start	ting with the sr	nallest.		
		0.83	$\frac{5}{6}$	82%	$\frac{23}{28}$	
		Answer	<	<	<	[2]
3	The ferry from Helsink The journey takes 28 ho Work out the day and to	ours 45 minutes.			ı a Tuesday.	
		Answer Day			Time	[2]
4		TR	I G O N O M I	ETRY		
	From the above word, v	write down the let	tters which hav	e		
	(a) exactly two lines of	of symmetry,				
				Answer(a)	)	[1]
	(b) rotational symmetr	ry of order 2.				
				Answer(b)	)	[1]

5 The table shows the average monthly temperatures in Beijing.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average temperature (°C)	-4.6	-2.2	4.5	13.1	19.8	24.0	25.8	24.4	19.4	12.4	4.1	-2.7

For Examiner's Use

(a) Work out how many degrees higher the temperature is in December than in January.

°C	[1]
	°C

**(b)** Find the range.

$$\mathbf{6} \qquad \mathbf{a} = \begin{pmatrix} 5 \\ -3 \end{pmatrix} \qquad \mathbf{b} = \begin{pmatrix} -2 \\ 7 \end{pmatrix}$$

Work out  $3\mathbf{a} + \mathbf{b}$ .

$$1\frac{1}{2} + \frac{1}{3} + \frac{1}{4} = \frac{p}{12}$$

Work out the value of p.

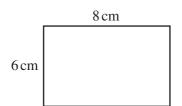
Show all your working.

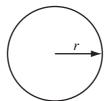
$$Answer p =$$
 [2]

For Examiner's Use

8	A lake has an area of 63 800 000 000 square metres.			
	Write this area in square kilometres, correct to 2 significant	cant figures.		
		Answer	km <sup>2</sup>	[2]
9	(a) Simplify $a^{-3} \times a^8$ .			
		Answer(a)		[1]
	<b>(b)</b> Work out the value of $5^{-2}$ .			
	(b) Work out the value of 3.			
		Answer(b)		[1]
10	The number of people, $n$ , who attended a concert was 1	2 600 to the	nearest 100	
10		2 000 to the	neurest 100.	
	Complete the statement about $n$ .			
	Answer		$\leq n <$	[2]
11	Keiko travels from Tokyo to London for the Olympic C	lames.		
	On the internet, a flight costs £767.			
	(a) Use the exchange rate £1 = 143 Japanese Yen to f	ind the cost	of the flight in Japanese Yen.	
	(.,			
		4	<b>X</b> 7	F13
		Answer(a)	Yen	[1]
	<b>(b)</b> Write your answer to <b>part (a)</b> in standard form.			
		Answer(b)		[1]

**12** 





NOT TO SCALE For Examiner's Use

The perimeter of the rectangle is the same length as the circumference of the circle.

Calculate the radius, r, of the circle.

Answer r =	 cm	[3]

13 (a) Factorise  $xy - y^2$ .

**(b)** Solve 4x - 7 = 12.

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

For Examiner's Use

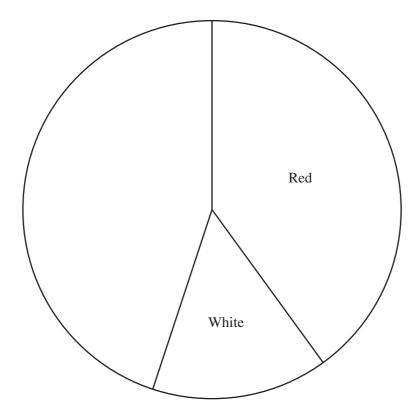
14	Sca	itte	er diagrams	are draw	vn to c	ompare	e sets o	of data	from	each te	am in	a hocke	ey leagu	e during a y	ear.
	Wr	ite	e down the t	ype of co	orrelati	on you	ı woul	d expe	ct to s	ee whe	n the	lata rec	orded is	S	
	(a)	t	the number	of games	s won a	and the	total j	points	scored	l <b>,</b>					
							_								[1]
	(b)	t	the number	of games	s drawi	n and t	he ave	rage h	eight c	of the to	eam,				
									£	1nswer	(b)				[1]
	(c)	t	the number	of goals	scored	and th	ne final	l positi	on in t	he leag	gue.				
									£.	Inswer	(c)				[1]
15				F	F	т !	T	T		¬	-,	-,			
				 		 	 	ļ 				-			
						+									
				           		±	i	i		<b>/</b>					
	The	3.6	diagram sho	We o and	drilata	rol dro	IIII on	a 1 am	, canor	o orid	J				
	(a)		Write down	-					-						
	(a)		write down	the man	icinati	car man	ne or t	ne qua	arriace	141.					
							1	<b>10</b> 01 11 010/	(a)						Γ1 <b>1</b>
							A.	nswer(	a) <u>.</u> .			••••••	•••••		[1]
	<b>(b)</b>	]	Find the are	a of the	quadril	ateral	and gi	ve the	units.						
									1		<b>7</b> .)				[2]
									Al	nswer(	<i>u)</i>	•••••			[2]

16 The shirt colour of the teams in a football league are shown in the following table.

Colour	Frequency
Red	8
White	3
Blue	7
Gold	2

The pie chart shows some of this information.

The sectors for red shirts and white shirts have been drawn.



(a) Calculate the angle of the sector for blue shirts.

1 /	1	$\Gamma \gamma$	٦
Answer(a	)	12	ı

**(b)** Complete the pie chart.

[1]

Examiner's Use

				8		
17	Solv	ve the simultaneous equations.	6x + 2y = 22 $4x - y = 3$			
				Answer x =		
				<i>y</i> =		[3]
18	The	taxi fare in a city is \$3 and the	en \$0.40 for eve	ery kilometre travel	led.	
		A taxi fare is \$9.				
		How far has the taxi travelled	?			
				Answer(a)		km [2]
	<b>(b)</b>	Taxi fares cost 30% more at n	ight.			
		How much does a \$9 daytime	journey cost at	t night?		

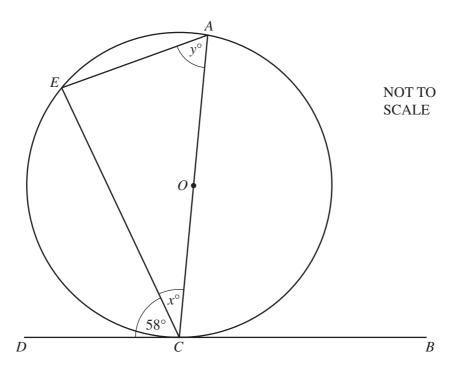
Answer(b) \$ .....

[2]

For Examiner's Use

19

For Examiner's Use



AC is a diameter of a circle, centre O.

BCD is a tangent to the circle and E is a point on the circumference.

Angle  $ECD = 58^{\circ}$ .

Work out the value of

(a) x,

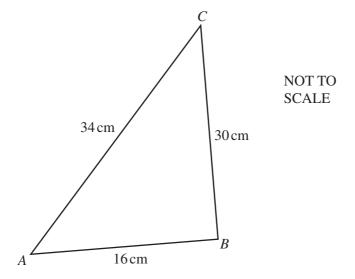
$$Answer(a) x =$$
 [2]

**(b)** *y*.

$$Answer(b) y =$$
 [2]

**20** 

For Examiner's Use



(a) Write down all your working to show that angle ABC is a right angle.

Answer(a)

[2]

**(b)** Use trigonometry to calculate angle *CAB*.

Answer(b) Angle CAB = [2]

21	(a)	Show that the sum	of the interior	angles of a	regular pentago	n is 540°.
----	-----	-------------------	-----------------	-------------	-----------------	------------

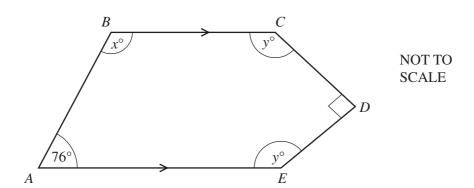
Show that the sum of the interior angles of a regular pentagon is 540

For Examiner's Use

[2]

**(b)** 

Answer(a)



The diagram shows a pentagon *ABCDE*. *BC* is parallel to *AE* and angle *CDE* is a right angle.

Find the values of x and y.

Answer(b) x =

y = [3]

## **BLANK PAGE**

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.