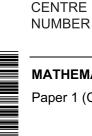


UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

VS ATTACHER COM



CANDIDATE NAME **CENTRE** CANDIDATE

NUMBER

0581/12 **MATHEMATICS**

Paper 1 (Core) May/June 2011

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 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.

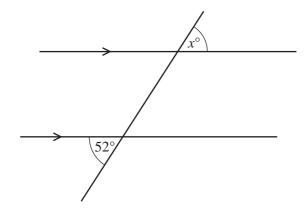
The total of the marks for this paper is 56.

This document consists of 11 printed pages and 1 blank page.



Answer	[1]
111151101	 L*.

2



NOT TO SCALE

A straight line intersects two parallel lines as shown in the diagram.

Find the value of x.

$$Answer x = [1]$$

3 A letter is chosen at random from the following word.

STATISTICS

Write down the probability that the letter is

(a) \mathbf{A} or \mathbf{I} ,

Answer(a)	 [1]
111151101	 L+J

(b) \mathbf{E} .

$$Answer(b) \qquad [1]$$

4 Ingrid throws a javelin a distance of 58.3 metres, correct to 1 decimal place.

Complete the statement about the distance, *d* metres, the javelin is thrown.

Answer
$$\leq d <$$
 [2]

$$1\frac{5}{9} \div 1\frac{7}{9} = \frac{7}{8} .$$

Write down all the steps in your working.

Answer

[2]

6

$$\frac{3}{5}$$

Which of the following could be a value of p?

$$\frac{16}{27}$$

0.67

60% $(0.8)^2$

 $\sqrt{\frac{4}{9}}$

Answer [2]

7 Calculate 324×17 .

Give your answer in standard form, correct to 3 significant figures.

Answer [2]

A meal on a boat costs 6 euros (€) or 11.5 Brunei dollars (\$). 8

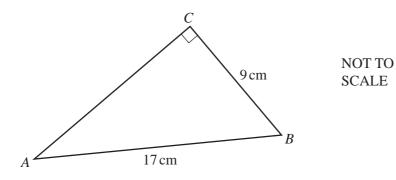
For iner's In which currency does the meal cost less, on a day when the exchange rate is $\leq 1 = 1.9037$? Write down all the steps in your working.

Answer	 [2]

Simplify $32x^8 \div 8x^{32}$. 9

Answer	 [2]

10



In the triangle ABC, AB = 17 cm, BC = 9 cm and angle $ACB = 90^{\circ}$.

Calculate AC.

Answer
$$AC =$$
 cm [3]

The table shows the opening and closing times of a café.

The table shows	the opening	and closing	5 times of a ca	ıfé.		102	vw xtrap	For iner's
	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Oride
Opening time	0600	0600	0600	0600	0600	(a)	0800	COM
Closing time	2200	2200	2200	2200	2200	2200	1300	

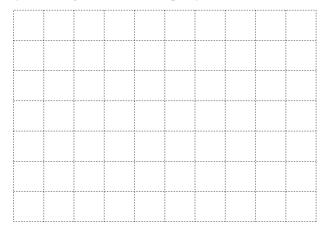
(a) The café is open for a total of 100 hours each week. Work out the opening time on Saturday.

Angwar(a)	[2]
Answer(a)	14

(b) The owner decides to close the café at a later time on Sunday. This increases the total number of hours the café is open by 4%. Work out the new closing time on Sunday.

12
$$\overrightarrow{AB} = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$$
 and $\overrightarrow{BC} = \begin{pmatrix} -5 \\ 4 \end{pmatrix}$

(a) Find \overrightarrow{AC} . You may use the grid below to help if you wish.



$$Answer(a) \overrightarrow{AC} =$$
 [2]

(b) Work out \overrightarrow{CA} .

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

13	(a)	Rewrite this	calculation	with all	the numbers	rounded to	1 significant	figure

$$\frac{77.8}{21.9 - 3.8 \times 4.3}$$

	(b)	Answer(a) Use your answer to part (a) to work out an estimate for the calculation.	[1]
	(c)	Answer(b) Use your calculator to find the actual answer to the calculation in part (a) . Give your answer correct to 1 decimal place.	[1]
		Answer(c)	[2]
14	(a)	Complete the list to show all the factors of 18. 1, 2,, 18	[2]
	(b)	Write down the prime factors of 18.	
	(c)	Answer(b)	[1]
		Answer(c)	[1]

$$3(2x - 5y) - 4(x - y)$$

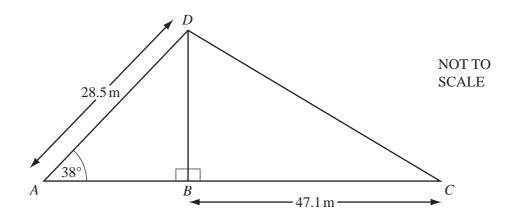
Answer(a) [2]

(b) Factorise completely.

$$6x^2 - 9xy$$

Answer(b) [2]

16



A flagpole, BD, is attached to level horizontal ground by ropes, AD and CD.

 $AD = 28.5 \text{ m}, BC = 47.1 \text{ m} \text{ and angle } DAB = 38^{\circ}.$

Calculate

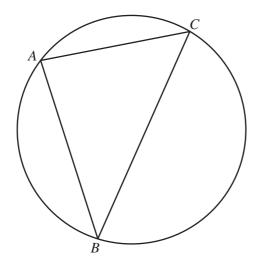
(a) BD, the height of the flagpole,

$$Answer(a) \ BD = \qquad \qquad \text{m [2]}$$

(b) angle *BCD*.

$$Answer(b) \text{ Angle } BCD =$$
 [2]

17 (a)



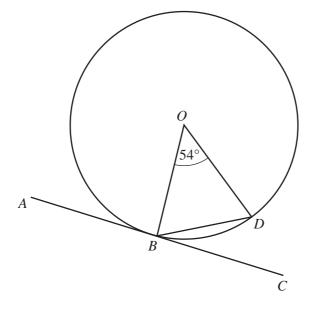
NOT TO SCALE

Points A, B and C lie on the circumference of the circle shown above.

When angle BAC is 90° write down a statement about the line BC.

Answer(a) [1]

(b)



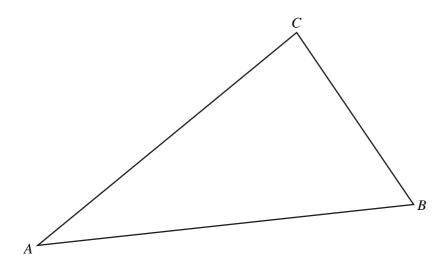
NOT TO SCALE

O is the centre of a circle and the line ABC is a tangent to the circle at B.

D is a point on the circumference and angle $BOD = 54^{\circ}$.

Calculate angle DBC.

$$Answer(b) \text{ Angle } DBC =$$
 [3]



(a) On the diagram above, using a straight edge and compasses only, construct

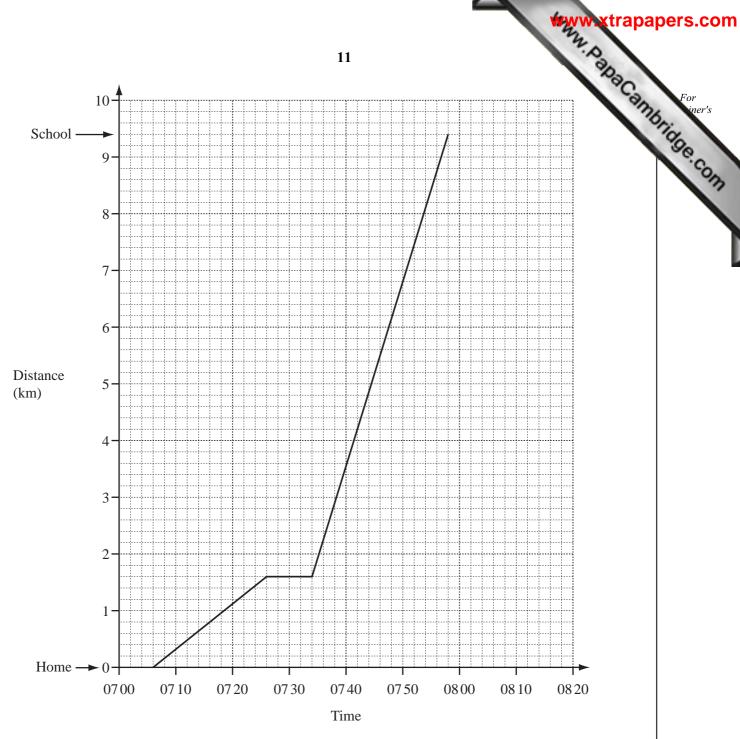
- (i) the bisector of angle ABC, [2]
- (ii) the locus of points which are equidistant from A and from B. [2]
- (b) Shade the region inside the triangle which is nearer to A than to B and nearer to AB than to BC.

min [1]

Answer(b)(iv)

			10			30	
19	(a)		e travel graph on the opposite page shows Joel's journey to walks to the bus stop and waits for the bus, which takes hi		school. the school.	-	Carr
		(i)	How long did Joel wait for the bus?				
			Answer(a)(i)		min	[1]
		(ii)	Find the distance from the bus stop to the school.				
			Answer(a,)(ii)		km	[1]
	(b)		I's sister, Samantha, leaves home 14 minutes later than Joe cycles at a constant speed and arrives at the school at 08		cycle to the same school	ol.	
		(i)	On the grid, show her journey.				[1]
		(ii)	At what time did the bus pass Samantha?				
			Answer(b)	. ,		••	[1]
		(iii)	How far from the school was she when the bus passed he	er?			
			Answer(b)((iii)]	km	[1]

(iv) How many minutes after Joel did Samantha arrive at the school?



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