

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

VS ATTACHER COM



MATHEMATICS Paper 1 (Core)



0581/12

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 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.



1	Wastr out the value of	48		
1	Work out the value of	$\overline{19.1 - 3.5 \times 4.6}$		

Answer [1]		
	Answer	[1]

2 Write the following in order of size, starting with the smallest.

$$\frac{5}{6}$$
 82% $\frac{23}{28}$

3 The ferry from Helsinki to Travemunde leaves Helsinki at 1730 on a Tuesday. The journey takes 28 hours 45 minutes.

Work out the day and time that the ferry arrives in Travemunde.

TRIGONOMETRY

From the above word, write down the letters which have

(a) exactly two lines of symmetry,

4

(b) rotational symmetry of order 2.

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

5 The table shows the average monthly temperatures in Beijing.

					3			'			1/2	Axtra		_	
ne table shows the	averag	ge mon	ithly te	empera	tures in	Beijin	ıg.					Dec -2.7	Cam	Fo	or iner's
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	1	Tido	1
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		20	CON
) Work out how	many o	degree	s highe	er the to	empera	ture is	in Dec	ember	than in	Januar	ry.		<u>-</u>	Ì	

American	00	Γ1
Answer(a)		1

(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.

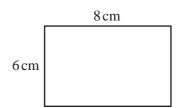
Show all your working.

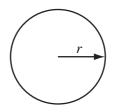
$$Answer p =$$
 [2]

8 A lake has an area of 63 800 000 000 square metres.

Write this area in square kilometres, correct to 2 significant figures.

	A	nswer	km ²	[2]
9	(a) Simplify $a^{-3} \times a^{8}$.			
	(b) Work out the value of 5^{-2} .	nswer(a)	[1]
	A	nswer(b)	[1]
10	The number of people, n , who attended a concert was 126 Complete the statement about n .	500 to the	e nearest 100.	
	Answer		. ≤n <	[2]
11	Keiko travels from Tokyo to London for the Olympic Gar. On the internet, a flight costs £767. (a) Use the exchange rate £1 = 143 Japanese Yen to find		t of the flight in Japanese Yen.	
	(b) Write your answer to part (a) in standard form.	nswer(a)Yen	[1]
	A	nswer(b)	[1]





NOT TO SCALE

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]

e during For iner's 14 Scatter diagrams are drawn to compare sets of data from each team in a hockey league during Write down the type of correlation you would expect to see when the data recorded is

(a) the number of games won and the total points scored,

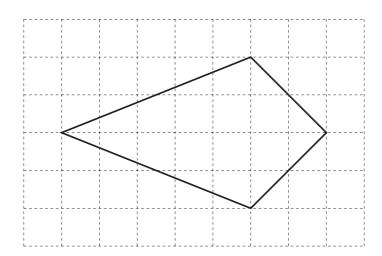
Angwar(a)	Г1
Answer(a)	 11

(b) the number of games drawn and the average height of the team,

(c) the number of goals scored and the final position in the league.

Answer(c)	[1]

15



The diagram shows a quadrilateral drawn on a 1 cm square grid.

(a) Write down the mathematical name of the quadrilateral.

Answer(a)	[]	1	

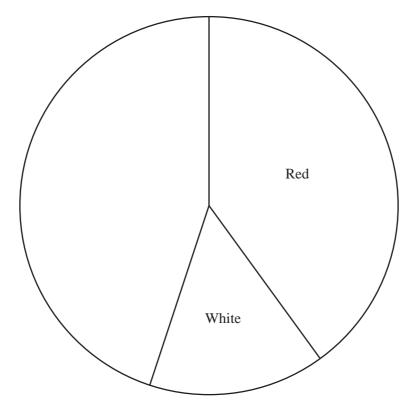
(b) Find the area of the quadrilateral and give the units.

Answer(b) [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.

Answer(a) [2]

(b) Complete the pie chart.

[1]

17	Solve	the	simultaneo	ous ec	uations
.,		uii	Dillialance	Jub CC	dutions

$$6x + 2y = 22$$
$$4x - y = 3$$

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

- 18 The taxi fare in a city is \$3 and then \$0.40 for every kilometre travelled.
 - (a) A taxi fare is \$9.

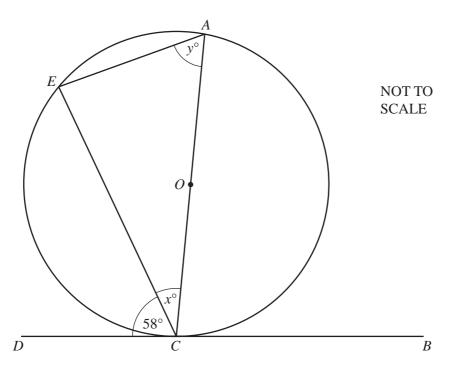
How far has the taxi travelled?

Answer(a) km [2]

(b) Taxi fares cost 30% more at night.

How much does a \$9 daytime journey cost at night?

Answer(b) \$ _____ [2]



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 $ECD = 58^{\circ}$.

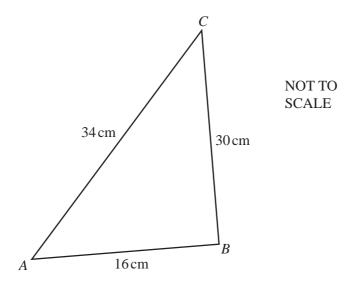
Work out the value of

(a) *x*,

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

(b) *y*.

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



(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*.

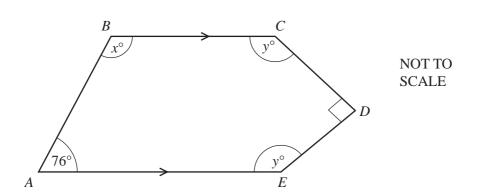
Answer(b) Angle CAB = [2]

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

Answer(a)

[2]

(b)



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 =

[3]

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