Location Entry Codes



From the June 2007 session, as part of CIE's continual commitment to maintaining best practice in assessment, CIE has begun to use different variants of some question papers for our most popular assessments with extremely large and widespread candidature, The question papers are closely related and the relationships between them have been thoroughly established using our assessment expertise. All versions of the paper give assessment of equal standard.

The content assessed by the examination papers and the type of questions are unchanged.

This change means that for this component there are now two variant Question Papers, Mark Schemes and Principal Examiner's Reports where previously there was only one. For any individual country, it is intended that only one variant is used. This document contains both variants which will give all Centres access to even more past examination material than is usually the case.

The diagram shows the relationship between the Question Papers, Mark Schemes and Principal Examiner's Reports.

Question Paper

Introduction First variant Question Paper Second variant Question Paper

Mark Scheme

Introduction
First variant Mark Scheme
Second variant Mark Scheme

Principal Examiner's Report

Introduction
First variant Principal Examiner's Report
Second variant Principal Examiner's Report

Who can I contact for further information on these changes?

Please direct any questions about this to CIE's Customer Services team at: international@cie.org.uk





UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

MATHEMATICS
Paper 1 (Core)

0580/01, 0581/01

May/June 2007

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.

For Examiner's Use

P

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



First variant Question Paper

2

1	Work out the value of	$\frac{9-3\times7}{3\times2}$.
---	-----------------------	---------------------------------

For Examiner's Use

American	Γ1
Answer	11

2 Write the following in order, with the smallest first.

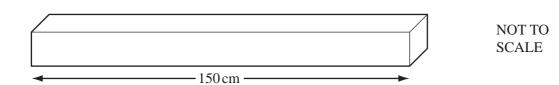
$$\frac{3}{5}$$
 0.58 62%

3 Jamal arrived at work at 0920 and left at 1715.

How long, in hours and minutes, did he spend at work?

Answer h min [1]

4



A piece of wood is 150 centimetres long.

It has to be cut into equal lengths of $6\frac{1}{4}$ centimetres.

How many of these lengths can be cut from this piece of wood?

Answer [1]

5	Daniel	nlote a	scatter	diagram	of speed	against	time	taken
3	Daniel	piois a	Scatter	ulagraili	or speed	agamsi	unic	taken

As the time taken increases, speed decreases.

Which one of the following types of correlation will his scatter graph show?

Positive Negative Zero

Answer [1]

6 The average temperatures in Moscow for each month are shown in the table below.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature °C	-10.2	-8.9	-4.0	4.5	12.2	16.3	18.5	16.6	10.9	4.3	-2.0	-7.5

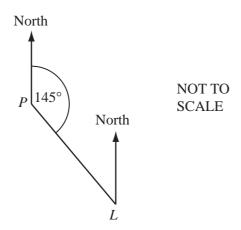
(a) Which month has the lowest average temperature?

Answer(a) [1]

(b) Find the difference between the average temperatures in July and December.

Answer(b) $^{\circ}$ C [1]

7



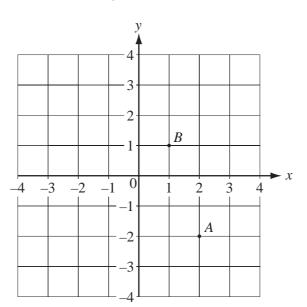
The bearing of a lighthouse, L, from a port, P, is 145°.

Find the bearing of P from L.

Answer [2]

© UCLES 2007 0580/01/J/07 **[Turn over**

For Examiner's Use **8** The points *A* and *B* are marked on the diagram.



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

Answer(a)
$$\overrightarrow{AB} = \left(\right)$$
 [1]

Examiner's Use

(b)
$$\overrightarrow{BC} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$$
.

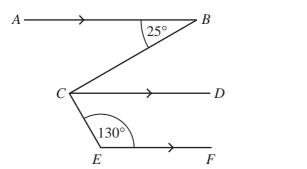
Write down the co-ordinates of C.

Answer(b) (______ , ____) [1]

9 Expand the brackets and simplify

$$3x^2 - x(x-3y).$$

Answer [2]



For Examiner's Use

In the diagram, AB, CD and EF are parallel lines.

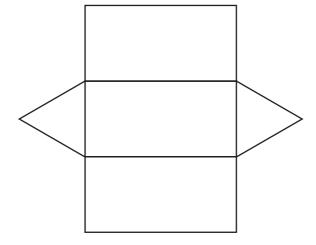
Angle $ABC = 25^{\circ}$ and angle $CEF = 130^{\circ}$.

Calculate angle BCE.

 [2]

NOT TO SCALE

11 The net of a solid is drawn accurately below.



Write down the special name for

(a) the triangles shown on the net,

Answer(a) [1]

(b) the solid.

Answer(b) [1]

12	Wri	Vrite down the equation of the straight line through $(0, -1)$ which is parallel to $y = 3x + 5$.						
			Answer y =	[2]				
13	(a)	$4^p \times 4^5 = 4^{15}$. Find the value of p.						
			Answer(a) p =	[1]				
	(b)	$2^7 \div 2^q = 2^4$. Find the value of q.						
			Answer(b) q =	[1]				
	(c)	$5^r = \frac{1}{25}$. Find the value of r.						
	(0)	25 17 ma the value of 7.						
			August(s) u =	F11				
			Answer(c) r =	[1]				
14	(a)	Alex changed \$250 into euros (ϵ) when the	e rate was $\ε 1 = \$1.19886$.					
		How many euros did he receive?						
		·						
			Answer(a) €	[2]				
	a >			[-]				
	(b)	Write 1.19886 correct to 3 significant figure	res.					
			Answer(b)	[1]				

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15	The diagram shows a regular hexagon and a square.	
	NOT T SCAL	
	Calculate the values of <i>x</i> and <i>y</i> .	

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

Examiner's Use

16 Aminata bought 20 metres of cloth at a cost of \$80.

She sold 15 metres of the cloth at \$5.40 per metre and 5 metres at \$3 per metre.

(a) Calculate the profit she made.

Answer(a) \$ [2]

(b) Calculate this profit as a percentage of the original cost.

Answer(b) % [1]

		8								
17										
		Write this number in standard form.								
	(b)	Answer(a) kn 29.4% of the surface area of the earth is land. Calculate the area of land.	n² [2]							
		Answer(b) kn	n² [2]							
18	A b	NOT TO SCALE N and air balloon, M , is 900 metres vertically above a point N on the ground. Boy stands at a point O , 1200 metres horizontally from N . Calculate the distance, OM , of the boy from the balloon.								

Examiner's Use

Answer(b) Angle MON = [2]

Answer(a) OM =

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(b) Calculate angle *MON*.

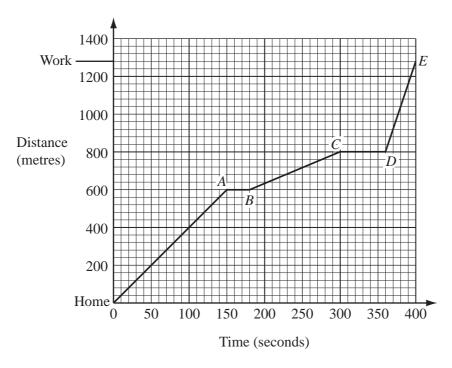
19	In triangle ABC , $AB = 110$ mm, $AC = 65$ mm and $BC = 88$ mm.									
	(a)	Calculate the perimeter of the tria	ngle <i>ABC</i> .							
			Answer(a)		mm [1]					
	(b)	Construct the triangle <i>ABC</i> , leaving								
	(0)		ng m your construction	n ares.						
		The side AB is drawn for you.								
		\overline{A}	110 mm	\overline{B}	[2]					
					[2]					
	(a)	The side <i>AB</i> is 110 mm, correct t	o the necessity	otwo						
	(c)			eu e.						
		Write down the shortest possible	length of AB.							
			Answer(c)		mm [1]					

15 stude	ents estimated	the area of the r	ectangle	shown be	low.				
Their es	timates, in squ	are centimetres	, were						
		45	44	50	50	48			
		24	50	46	43	50			
		48	20	45	49	47			
(a) Wo	ork out								
(i)	the mode,								
(ii)	the mean,			Answer	<i>r(a)</i> (i)			cm ²	[1]
(iii)	the median.			Answer	r(a)(ii)			cm ²	[2]
				Answer	r(a)(iii)			cm^2	[2]
(b) Exp	plain why the	mean is not a su	itable av	erage to re	epresent	this data.			
Ans	swer(b)								
									[1]
	(a) Wo (ii) (iii)	(a) Work out (i) the mode, (ii) the mean,	Their estimates, in square centimetres 45 24 48 (a) Work out (i) the mode, (ii) the mean, (iii) the meanis not a su	Their estimates, in square centimetres, were 45	Their estimates, in square centimetres, were 45 44 50 46 48 20 45 (a) Work out (i) the mode, Answer (ii) the mean, Answer (iii) the median.	45 44 50 50 24 50 46 43 48 20 45 49 (a) Work out (i) the mode, Answer(a)(i) (ii) the mean, Answer(a)(ii) (b) Explain why the mean is not a suitable average to represent	Their estimates, in square centimetres, were 45	Their estimates, in square centimetres, were 45	Their estimates, in square centimetres, were 45

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The graph shows the distance travelled by a cyclist on a journey from Home to Work.

(a) The cyclist stopped twice at traffic lights.

For how many seconds did the cyclist wait altogether?

4 / /	[0]
Answer(a)	s [2]
answeriai	3 141

(b) For which part of the journey did the cyclist travel fastest?

(c) (i) How far did the cyclist travel from Home to Work?

$$Answer(c)(i)$$
 m[1]

(ii) Calculate the cyclist's average speed for the whole journey.

Answer(c)(ii) m/s [3]

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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS International General Certificate of Secondary Education

CANDIDATE NAME					
CENTRE NUMBER			CANDIDATE NUMBER		

MATHEMATICS 0580/01, 0581/01

Paper 1 (Core) May/June 2007

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.

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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.

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1	Work out the value of	$\frac{6-3\times12}{3\times2}$.
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Angwar	Γ1
Answer	1

2 Write the following in order, with the smallest first.

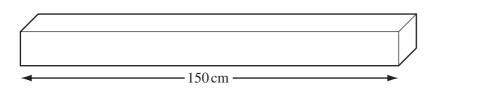
$$\frac{4}{5}$$
 0.79 81%

3 Jamal arrived at work at 0940 and left at 1725.

How long, in hours and minutes, did he spend at work?

Answer h min [1]

4



NOT TO SCALE

A piece of wood is 150 centimetres long.

It has to be cut into equal lengths of $6\frac{1}{4}$ centimetres.

How many of these lengths can be cut from this piece of wood?

Answer [1]

For
Examiner'
I Inc

5 Daniel plots a scatter diagram of speed against time taken.

As the time taken increases, speed decreases.

Which one of the following types of correlation will his scatter graph show?

Positive Negative Zero

Answer [1

6 The average temperatures in Moscow for each month are shown in the table below.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature °C	-10.2	-8.9	-4.0	4.5	12.2	16.3	18.5	16.6	10.9	4.3	-2.0	-7.5

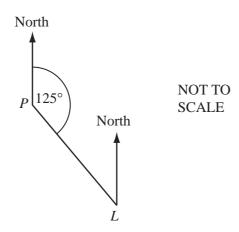
(a) Which month has the lowest average temperature?

Answer(a) [1]

(b) Find the difference between the average temperatures in February and October.

Answer(b) °C [1]

7



The bearing of a lighthouse, L, from a port, P, is 125°.

Find the bearing of P from L.

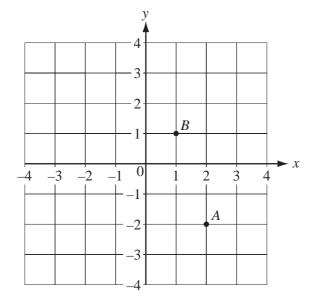
Answer [2]

Second variant Question Paper

4

8 The points A and B are marked on the diagram.

For Examiner's Use



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

Answer(a)
$$\overrightarrow{AB} = \left(\right)$$
 [1]

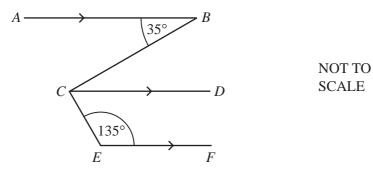
(b)
$$\overrightarrow{BC} = \begin{pmatrix} -3 \\ -2 \end{pmatrix}$$
.

Write down the co-ordinates of *C*.

Answer(b)	()	[1]
miswer (b)	(/	L + J

9 Expand the brackets and simplify

$$4x^2 - x(x - 2y).$$



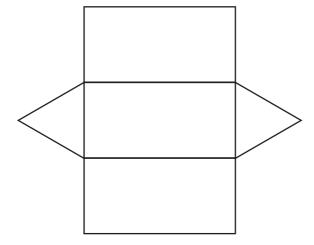
In the diagram, AB, CD and EF are parallel lines.

Angle $ABC = 35^{\circ}$ and angle $CEF = 135^{\circ}$.

Calculate angle BCE.

$$Answer Angle BCE =$$
 [2]

11 The net of a solid is drawn accurately below.



Write down the special name for

(a) the triangles shown on the net,

Answer(a) [1]

(b) the solid.

Answer(b) [1]

For

Examiner's Use

			U				
12	Wri	Vrite down the equation of the straight line through $(0, -3)$ which is parallel to $y = 2x + 3$.					
			Answer y =	[2]			
13	(a)	$3^p \times 3^5 = 3^{14}$. Find the value of p.					
			Answer(a) p =	[1]			
	(b)	$2^8 \div 2^q = 2^3$. Find the value of q .					
			Answer(b) q =	 [1]			
	(c)	$6^r = \frac{1}{36}$. Find the value of r .					
			Answer(c) r =	[1]			
14	(a)	Alex changed \$270 into euros (€) when the rate was $€1 = 1.19886 .					
		How many euros did he receive?					
			$Answer(a) \in$	[2]			
	(b)	Write 1.19886 correct to 3 significant fig	ures.				
			Inswer(h)	[1]			

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15	The diagram shows a regular hexagon and a square.
	NOT TO SCALE

Calculate the values of x and y.

Answer x =	
y =	 [3]

16 Aminata bought 20 metres of cloth at a cost of \$90.

She sold 15 metres of the cloth at \$5.80 per metre and 5 metres at \$3 per metre.

(a) Calculate the profit she made.

Answer(*a*)\$ [2]

(b) Calculate this profit as a percentage of her original cost.

Answer(b) % [1]

17	(a)	The surface area	of the earth is	approximately	z 510 000 000 so	guare kilometres.
.,	(••)	The bullace area	or the cartin is	approximatery	210000000	quare miloinenes.

Write this number in standard form.

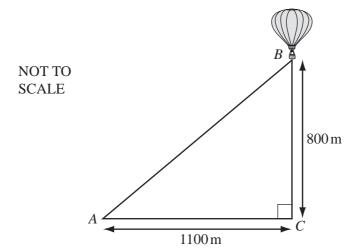
Answer(a)	km^2	[2]
111111111111111111111111111111111111111	17111	- 1 -

(b) 29.4% of the surface area of the earth is land.

Calculate the area of land.



18



A hot air balloon, B, is 800 metres vertically above a point C on the ground.

A girl stands at a point A, 1100 metres horizontally from C.

(a) Calculate the distance, AB, of the girl from the balloon.

$$Answer(a) AB =$$
 m[2]

(b) Calculate the angle *BAC*.

$$Answer(b) Angle BAC =$$
 [2]

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For

19	In triangle LMN , $LM = 120$ mm, $LN = 70$ mm and $MN = 86$ mm.							
	(a)	Calculate the perimeter of the triangle <i>LMN</i> .		Use				
		Answer(a)	mm [[1]				
	(b)	Construct the triangle <i>LMN</i> , leaving in your construction arcs.						
		The side LM is drawn for you.						
		L 120 mm M	_					
			Ĺ	2]				
	(c)	The side LM is 120 mm, correct to the nearest millimetre.						
		Write down the shortest possible length of <i>LM</i> .						
		Answer(c)	mm 「	1]				
		This wer (c)	mm [<u>- 1</u>				

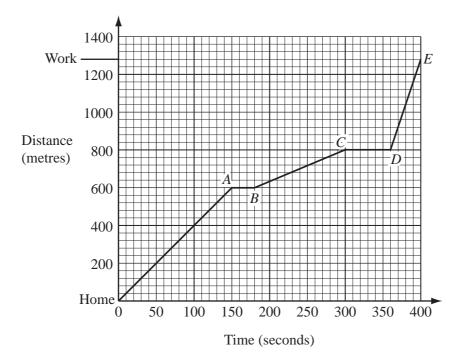
For

Examiner's Use

15 stude	nts estimated	the area of the	rectangle	shown be	low.				
Their est	timates, in squ	are centimetres	s were						
		45	44	50	50	51			
		21	50	46	43	50			
		48	22	45	49	48			
(a) Wo	rk out								
(i)	the mode,								
				Answei	<i>(a)</i> (i)			cm ²	[1]
(ii)	the mean,								
				Angwa	(a)(ii)			am²	[2]
(iii)	the median.			Answei	(<i>a)</i> (11)			CIII	[2]
,									
					()(''')			2	[0]
				Answei	'(a)(111)			cm²	[2]
		mean is not a su	uitable av	erage to re	epresent	this data.			
									[1]
	Their est (a) Wo (i) (iii)	Their estimates, in squ (a) Work out (i) the mode, (ii) the mean,	Their estimates, in square centimetres 45 21 48 (a) Work out (i) the mode, (ii) the mean, (iii) the median.	Their estimates, in square centimetres were 45	Their estimates, in square centimetres were 45 44 50 21 50 46 48 22 45 (a) Work out (i) the mode, Answer (ii) the mean, Answer (iii) the median.	45 44 50 50 21 50 46 43 48 22 45 49 (a) Work out (i) the mode, Answer(a)(i) (ii) the mean, Answer(a)(iii) (b) Explain why the mean is not a suitable average to represent	Their estimates, in square centimetres were 45	Their estimates, in square centimetres were 45	Their estimates, in square centimetres were 45

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The graph shows the distance travelled by a cyclist on a journey from Home to Work.

(a) The cyclist stopped twice at traffic lights.

For how many seconds did the cyclist wait altogether?

4 ()	Fa	•
Answer(a)	s [2	, ,
answertar	5 12	۱ ک

(b) For which part of the journey did the cyclist travel fastest?

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

(c) (i) How far did the cyclist travel from Home to Work?

$$Answer(c)(i)$$
 m[1]

(ii) Calculate the cyclist's average speed for the whole journey.

Answer(c)(ii) m/s [3]

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