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	Mark Scheme	Principal Examiner's Report
Introduction	Introduction	Introduction
First variant Question Paper	First variant Mark Scheme	First variant Principal Examiner's Report
Second variant Question Paper	Second variant Mark Scheme	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

First variant Question Paper

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

9556778355

MATHEMATICS **0580/01, 0581/01**

Paper 1 (Core) **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.

UNIVERSITY of CAMBRIDGE International Examinations

For Examiner's Use

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

Answer ..... [1]

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

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

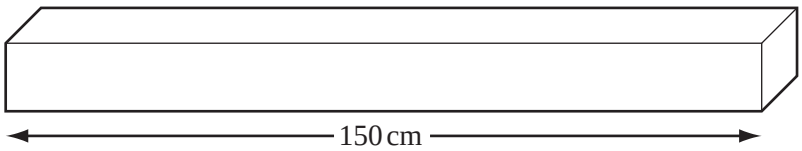
Answer ..... < ..... < ..... [1]

3 Jamal arrived at work at 09 20 and left at 17 15.

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's Use

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

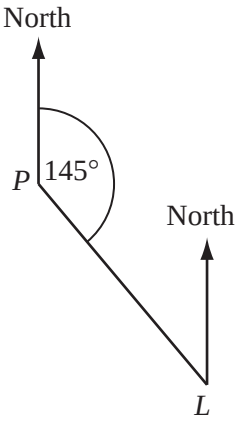
(a) Which month has the lowest average temperature?

Answer(a) ..... [1]

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

Answer(b) ..... °C [1]

7



NOT TO SCALE

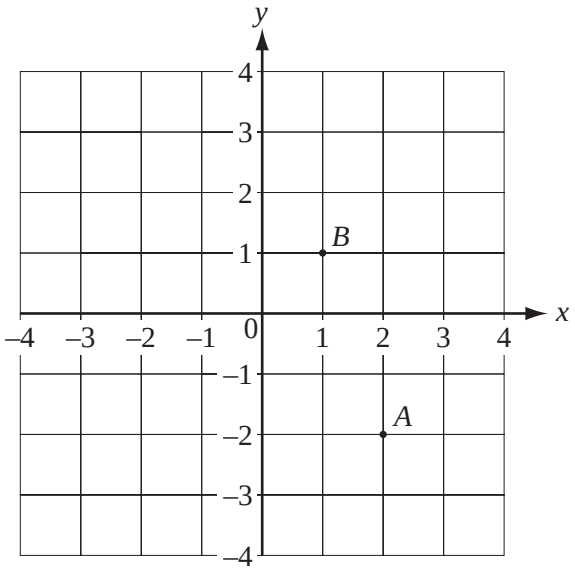
The bearing of a lighthouse, *L*, from a port, *P*, is 145°.

Find the bearing of *P* from *L*.

Answer ..... [2]

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) $\overrightarrow{AB} = \begin{pmatrix} \\ \end{pmatrix}$ [1]

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

Write down the co-ordinates of C.

Answer(b) (..... , ...) [1]

---

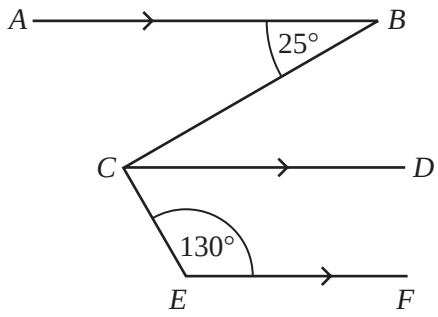
9 Expand the brackets and simplify

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

Answer ..... [2]

For Examiner's Use

10



NOT TO SCALE

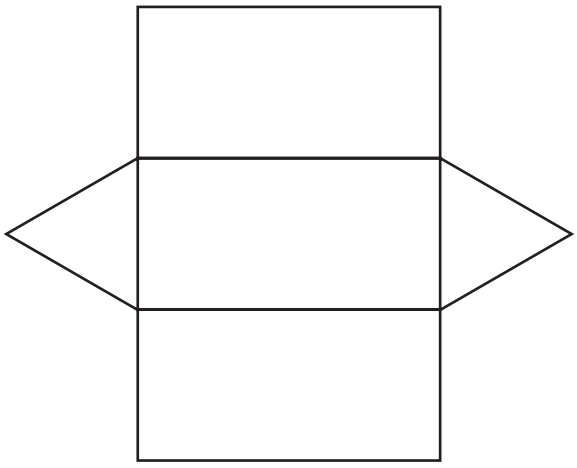
In the diagram, *AB, CD* and *EF* are parallel lines.

Angle *ABC* = 25° and angle *CEF* = 130°.

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

12 Write 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.

Answer(c) $r =$ ..... [1]

14 **(a)** Alex changed \$250 into euros (€) when the rate was €1 = \$1.19886.

How many euros did he receive?

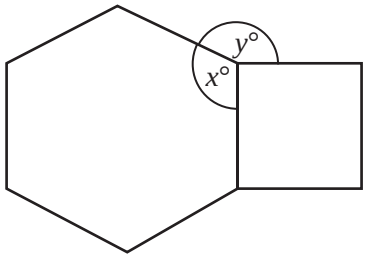
Answer(a) € ..... [2]

(b) Write 1.19886 correct to 3 significant figures.

Answer(b) ..... [1]

For Examiner's Use

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 \$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]

For Examiner's Use

17 **(a)** The surface area of the earth is approximately 510 000 000 square kilometres.

Write this number in standard form.

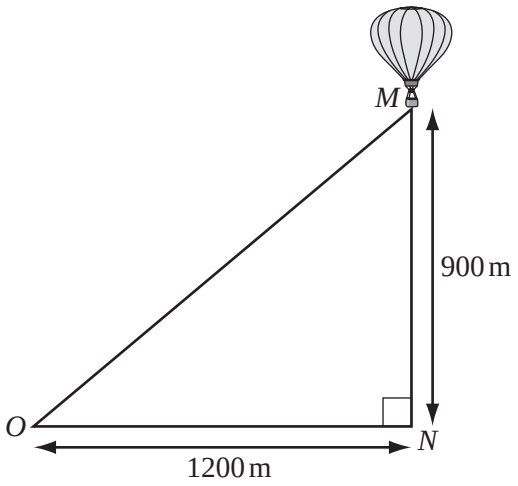
Answer(a) ..... km^2 [2]

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

Calculate the area of land.

Answer(b) ..... km^2 [2]

18



NOT TO SCALE

A hot air balloon, *M*, is 900 metres vertically above a point *N* on the ground.

A boy stands at a point *O*, 1200 metres horizontally from *N*.

(a) Calculate the distance, *OM*, of the boy from the balloon.

Answer(a) OM = ... m [2]

(b) Calculate angle *MON*.

Answer(b) Angle MON = ... [2]

For Examiner's Use

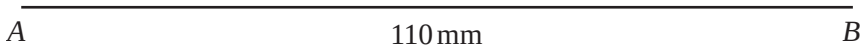
19 In triangle ABC, $AB = 110$ mm, $AC = 65$ mm and $BC = 88$ mm.

(a) Calculate the perimeter of the triangle ABC.

Answer(a) ..... mm [1]

(b) Construct the triangle ABC, leaving in your construction arcs.

The side AB is drawn for you.



[2]

(c) The side AB is 110 mm, **correct to the nearest millimetre**.

Write down the shortest possible length of AB.

Answer(c) ..... mm [1]

For Examiner's Use

20 15 students estimated the area of the rectangle shown below.

Their estimates, in square centimetres, were

45	44	50	50	48
24	50	46	43	50
48	20	45	49	47

(a) Work out

(i) the mode,

Answer(a)(i) ..... cm^2 [1]

(ii) the mean,

Answer(a)(ii) ..... cm^2 [2]

(iii) the median.

Answer(a)(iii) ..... cm^2 [2]

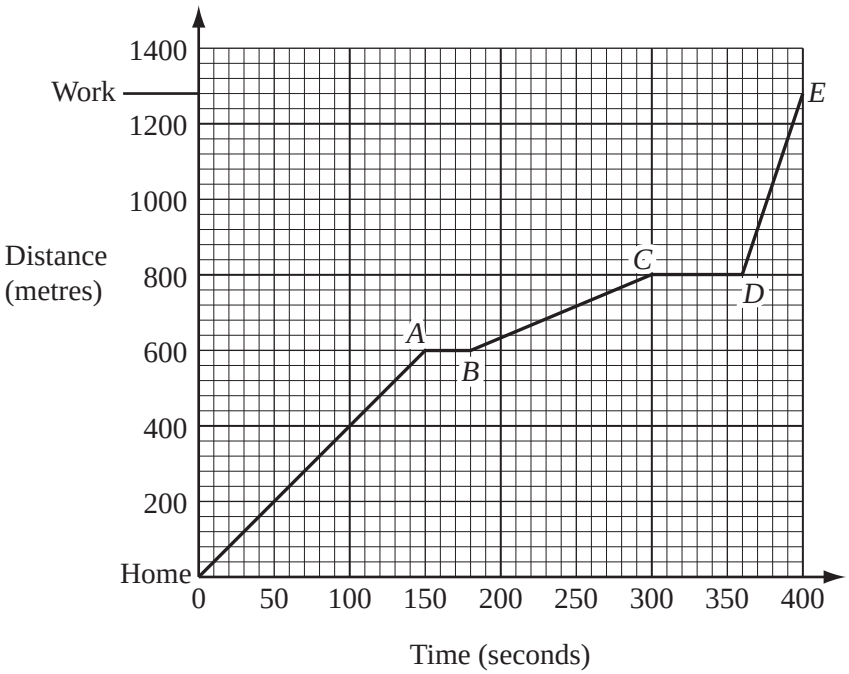
(b) Explain why the mean is not a suitable average to represent this data.

Answer(*b*)

[1]

21

For Examiner's Use



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?

Answer(a) ..... s [2]

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

Answer(b) ..... [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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Second variant Question Paper

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER | | | | | |

CANDIDATE NUMBER | | | | |

0089378030

MATHEMATICS **0580/01, 0581/01**

Paper 1 (Core) **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.
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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.

For Examiner's Use

Q

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

UNIVERSITY of CAMBRIDGE International Examinations

For Examiner's Use

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

Answer ..... [1]

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

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

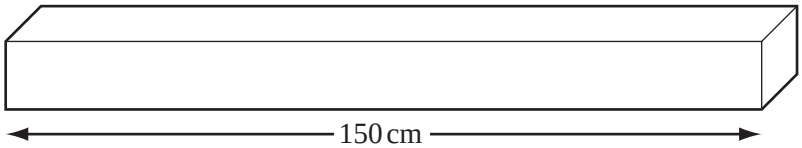
Answer ..... < ..... < ..... [1]

3 Jamal arrived at work at 09 40 and left at 17 25.

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's Use

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

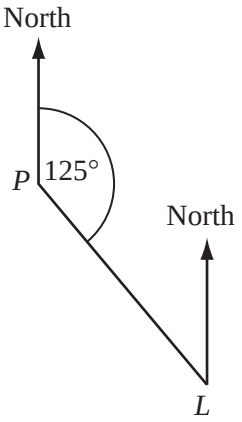
(a) Which month has the lowest average temperature?

Answer(a) ..... [1]

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

Answer(b) ..... °C [1]

7



NOT TO SCALE

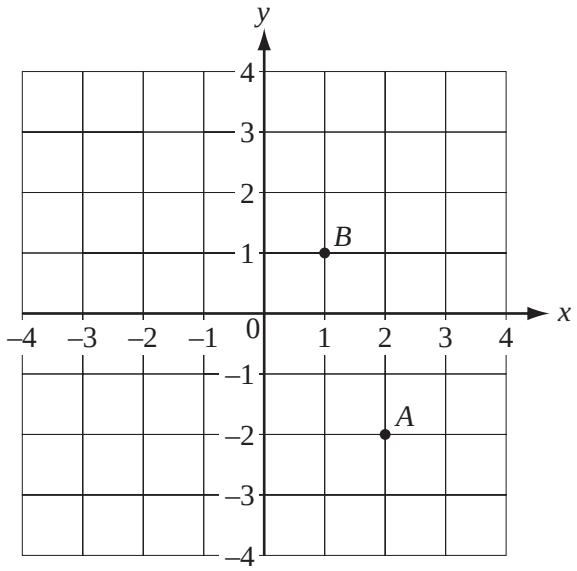
The bearing of a lighthouse, *L*, from a port, *P*, is 125°.

Find the bearing of *P* from *L*.

Answer ..... [2]

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) $\overrightarrow{AB} = \begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

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

Write down the co-ordinates of C.

Answer(b) (..... , ...) [1]

---

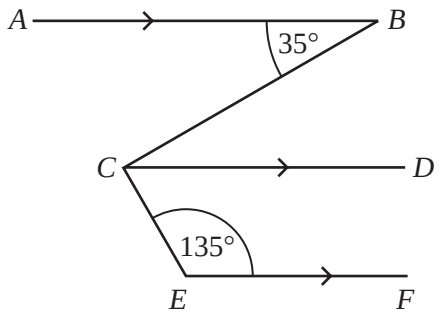
9 Expand the brackets and simplify

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

Answer ..... [2]

For Examiner's Use

10



NOT TO SCALE

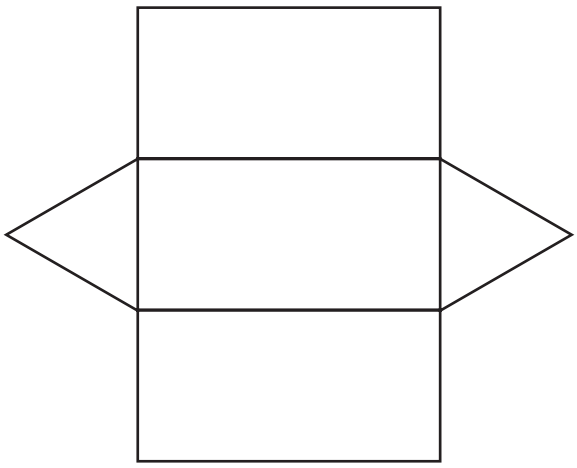
In the diagram, *AB, CD* and *EF* are parallel lines.

Angle *ABC* = 35° and angle *CEF* = 135°.

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

12 Write 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?

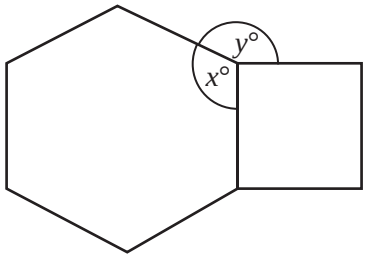
Answer(*a*) € ..... [2]

(b) Write 1.19886 correct to 3 significant figures.

Answer(*b*) ..... [1]

For Examiner's Use

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]

For Examiner's Use

17 **(a)** The surface area of the earth is approximately 510 000 000 square kilometres.

Write this number in standard form.

Answer(a) ..... km^2 [2]

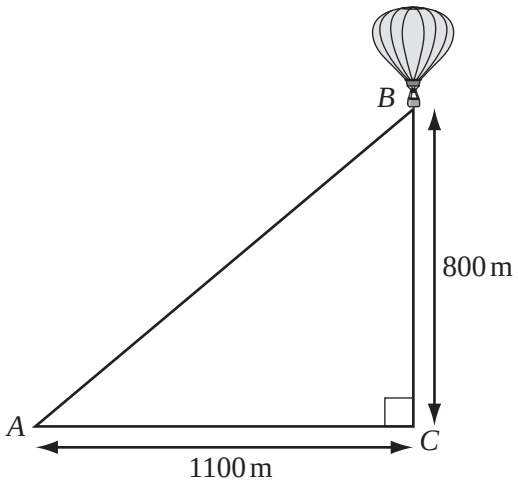
(b) 29.4% of the surface area of the earth is land.

Calculate the area of land.

Answer(b) ..... km^2 [2]

18

NOT TO SCALE



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]

For Examiner's Use

19 In triangle LMN, $LM = 120$ mm, $LN = 70$ mm and $MN = 86$ mm.

(a) Calculate the perimeter of the triangle LMN.

Answer(*a*) ..... mm [1]

(b) Construct the triangle LMN, leaving in your construction arcs.

The side LM is drawn for you.

[2]

(c) The side LM is 120 mm, **correct to the nearest millimetre**.

Write down the shortest possible length of LM.

Answer(*c*) ..... mm [1]

For Examiner's Use

20 15 students estimated the area of the rectangle shown below.

Their estimates, in square centimetres were

45	44	50	50	51
21	50	46	43	50
48	22	45	49	48

(a) Work out

(i) the mode,

Answer(*a*)(i) ..... cm^2 [1]

(ii) the mean,

Answer(*a*)(ii) ..... cm^2 [2]

(iii) the median.

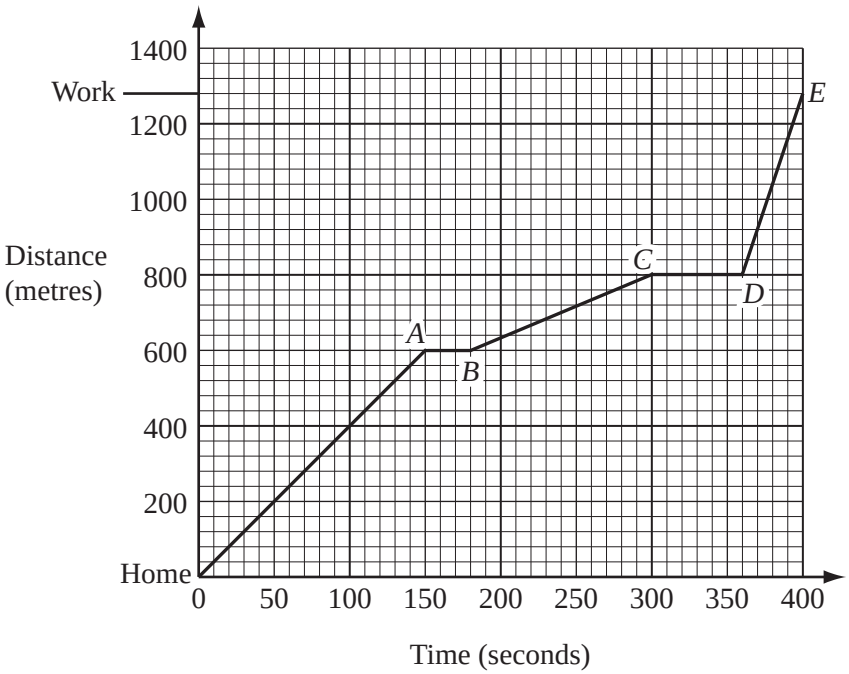
Answer(*a*)(iii) ..... cm^2 [2]

(b) Explain why the mean is not a suitable average to represent this data.
Answer(*b*)

[1]

For Examiner's Use

21



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?

Answer (*a*) ..... s [2]

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

Answer (*b*) ..... [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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