Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

2349652600

MATHEMATICS **0580/13**

Paper 1 (Core) **May/June 2016**

1 hour

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Tracing paper (optional)
Geometrical instruments

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 an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, 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.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **10** printed pages and **2** blank pages.

DC (NH/CGW) 113546/2

1 Write in figures the number nine million eighty two thousand five hundred and seven.

..... [1]

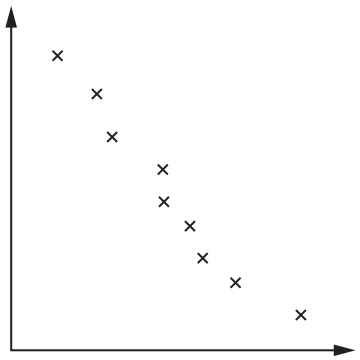
2 Write 71 496 correct to 2 significant figures.

..... [1]

3 Find the cube root of 4913.

..... [1]

4



What type of correlation is shown by the scatter diagram?

..... [1]

5 Calculate.

$$\frac{17.85 - 7.96}{18 - 3.5^2}$$

..... [1]

6 2 3 –4 –6 –8

From the list of numbers, write down

(a) three numbers whose sum is –12,

..... , ... , ... [1]

(b) two numbers whose product is –24.

..... , ... [1]

7 Solve the equation.

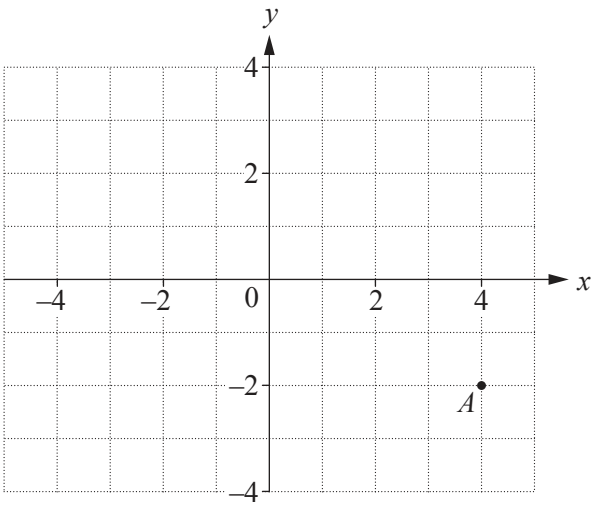
$$6(y + 1) = 9$$

$y =$ ..... [2]

8 **(a)** Write $3\begin{pmatrix}-2\\1\end{pmatrix}$ as a single vector.

$\begin{pmatrix}\quad\\\quad\end{pmatrix}$ [1]

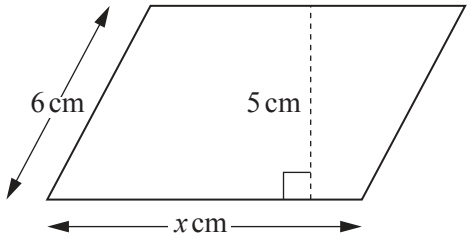
(b)



Point A is marked on the grid and $\overrightarrow{AB} = \begin{pmatrix}-7\\4\end{pmatrix}$.

On the grid, mark the point B. [1]

9



NOT TO SCALE

The area of this parallelogram is 51.5 cm^2.

Work out the value of x.

$x =$ ..... [2]

10 Lanying sells potatoes in bags.
Each bag contains 5 kg of potatoes, correct to the nearest 0.1 kg.

Complete the statement about the mass, m kilograms, of potatoes in each bag.

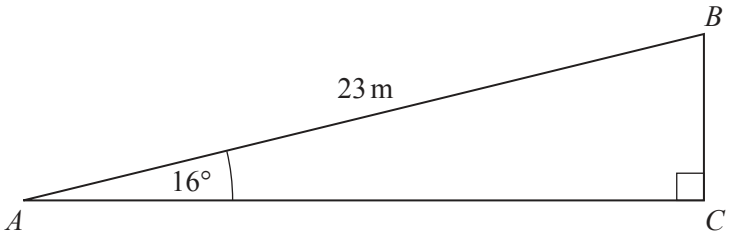
..... $\leqslant m <$ ..... [2]

11 **Without using a calculator**, work out $\frac{1}{12} \times 1\frac{1}{5}$.

Show all your working and give your answer as a fraction in its lowest terms.

..... [2]

12



NOT TO SCALE

A ramp, AB, with length 23 m, slopes up at an angle of 16° to the horizontal, AC.

Use trigonometry to calculate AC.

AC = ... m [2]

13 Jamal changes 800 Chinese Yuan into dollars.
The exchange rate is \$1 = 6.24 Chinese Yuan.

Calculate the number of dollars he receives.
Give your answer correct to the nearest dollar.

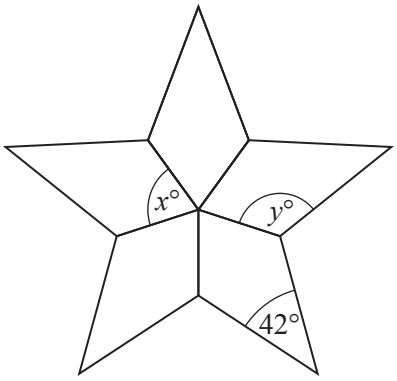
\$..... [3]

14 Cheng invested \$4500 at a rate of 3.5% per year compound interest.

Calculate the total amount he has after 3 years.

\$..... [3]

15



NOT TO SCALE

The diagram is made from 5 congruent kites.

Work out the value of

(a) x,

$x =$ ..... [1]

(b) y.

$y =$ ..... [2]

16 Solve the simultaneous equations.
You must show all your working.

$$3x + 7y = -21$$
$$6x + 4y = 3$$

$x =$ .....

$y =$ ..... [3]

17 The table shows the number of screws of different lengths in a box of 100 screws.

Length (mm)	20	40	50	60
Number of screws	18	36	24	22

A screw is chosen at random from the box.

Find the probability that the screw has length

(a) 50 mm,

..... [1]

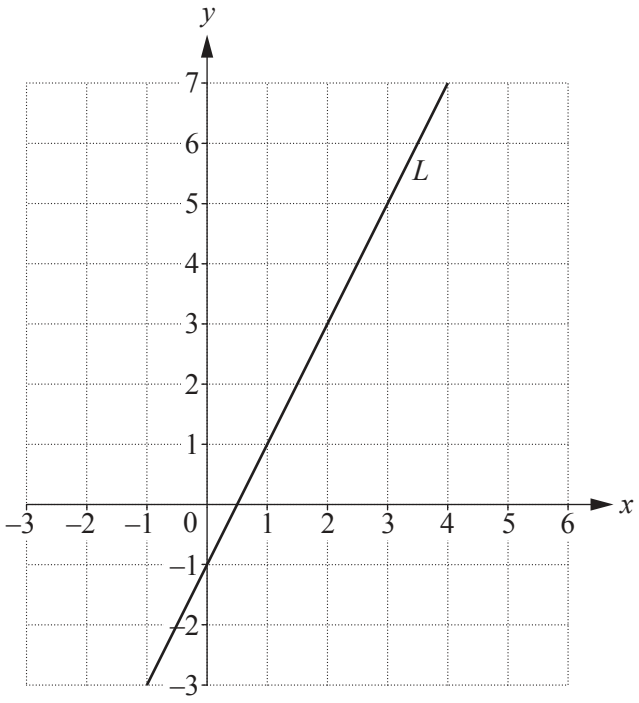
(b) less than 60 mm,

..... [2]

(c) 70 mm.

..... [1]

18



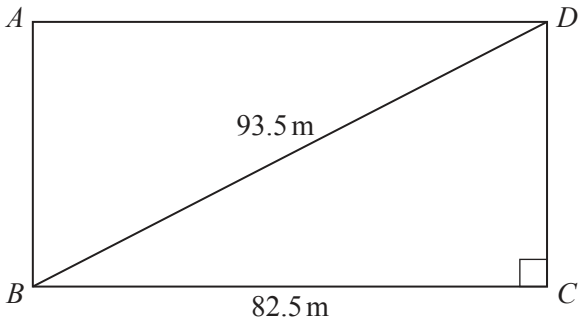
(a) Work out the gradient of the line L.

..... [2]

(b) Write down the equation of the line parallel to the line L that passes through the point (0, 6).

..... [2]

19



NOT TO SCALE

The diagram shows a rectangular field, *ABCD*, with a straight path, *BD*.

(a) Calculate the distance from *C* to *D*.

..... m [3]

(b) Yan walks along the edge of the field from *B* to *C* and then from *C* to *D*.
Lee walks along the straight path *BD*.

Work out how much further Yan walks than Lee.

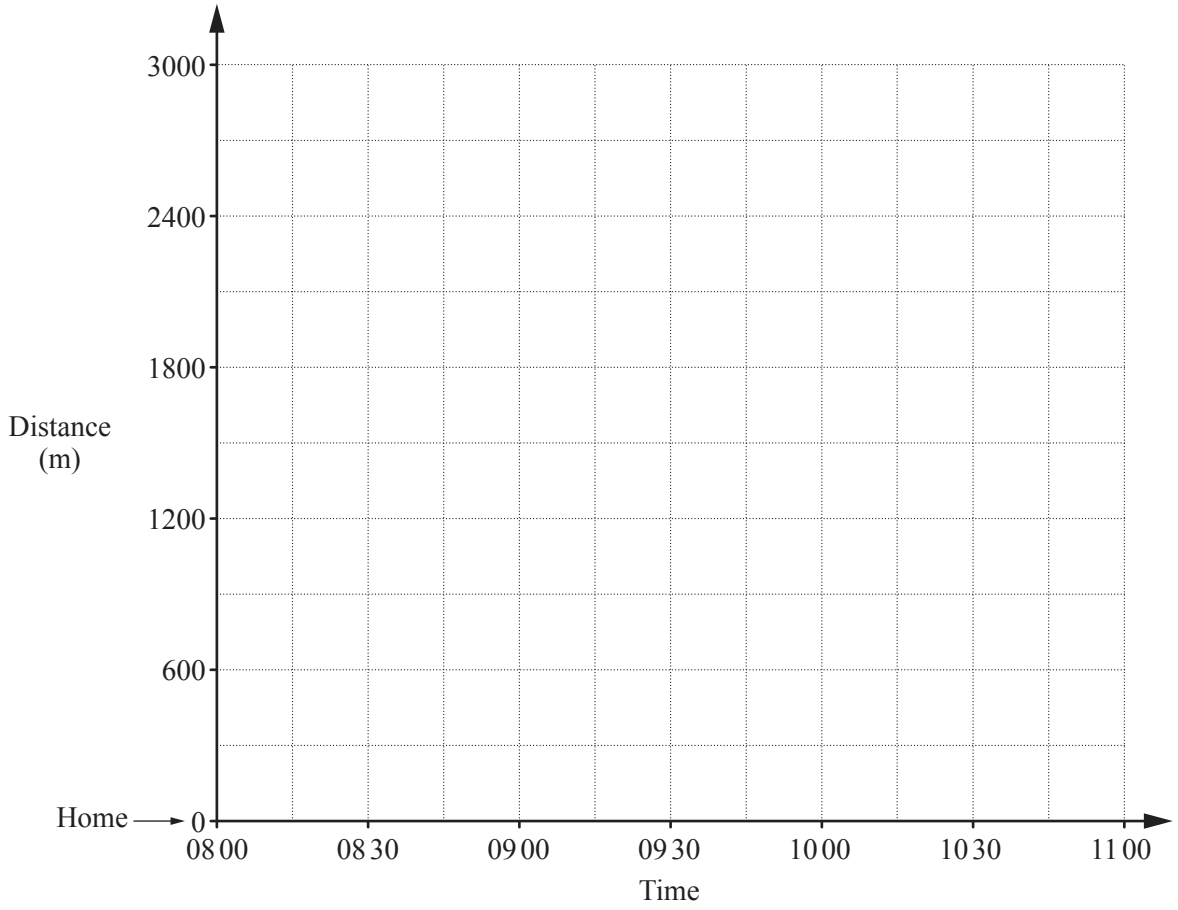
..... m [1]

20 **(a)** Alice leaves home at 08 15 and walks at 80 metres per minute, arriving at her friend's house half an hour later.

(i) Work out the distance she walks, in metres, from her home to her friend's house.

..... m [1]

(ii) On the grid, show her journey from her home to her friend's house. [1]



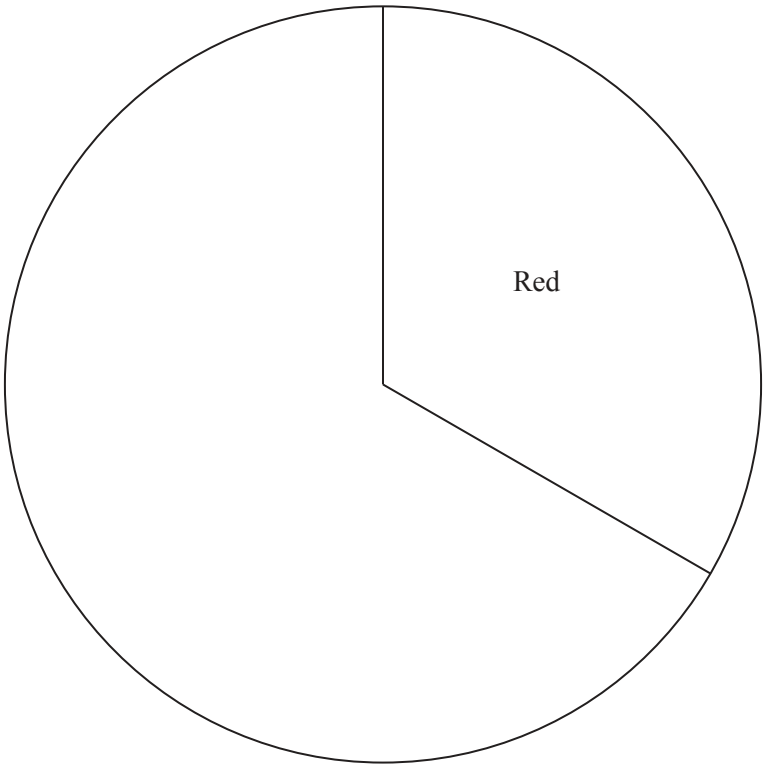
(b) Alice stays at her friend's house for $1\frac{1}{2}$ hours.
She then jogs home, arriving 15 minutes later.

(i) On the grid, complete the travel graph for her journey. [2]

(ii) Calculate her average speed, in metres per minute, on her journey home.

..... m/min [2]

21 45 members of an athletics club were asked to choose a colour for their club vests.
The choices were red, blue and green.
The pie chart shows the sector for the number of members who chose red.



(a) **(i)** Measure the sector angle for red.

..... [1]

(ii) Calculate the number of members who chose red.

..... [2]

(b) 24 members chose blue.

Calculate the sector angle for blue.

..... [2]

(c) Complete the pie chart. [1]

(d) What colour should the athletics club choose for their club vests?
Give a reason for your answer.

..... because ..... [1]

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