Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

MATHEMATICS **0580/13**

Paper 1 (Core) **October/November 2019**

1 hour

Candidates answer on the Question Paper.

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

READ THESE INSTRUCTIONS FIRST

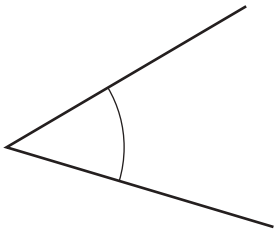
Write your centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

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.

This document consists of **12** printed pages.

1 Write down the mathematical name of this type of angle.



..... [1]

2 Change 560 metres into kilometres.

..... km [1]

3 Write the number forty thousand three hundred in figures.

..... [1]

4 Factorise $12x + 15$.

..... [1]

5 Put one pair of brackets into each calculation to make it correct.

(a) $8 + 6 - 2 \times 5 = 28$ [1]

(b) $8 + 6 - 2 \times 5 = 60$ [1]

6 **(a)** Write down the temperature that is 7 °C below −3 °C.

.....°C [1]

(b) Work out the difference in temperature between −4 °C and 4 °C.

.....°C [1]

7 Here is a list of numbers.

87 77 57 47 27

From this list, write down

(a) a cube number,

..... [1]

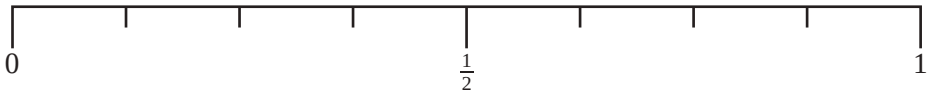
(b) a prime number.

..... [1]

8 A bag contains 6 red balls and 10 blue balls only.

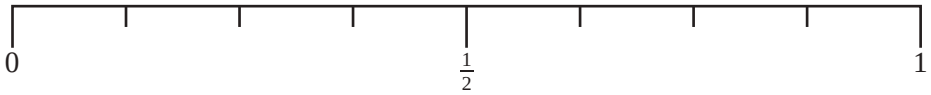
On the probability scale, draw an arrow (↓) to show the probability that a ball taken at random is

(a) blue,



[1]

(b) red or blue.



[1]

9 The price of a television is $560.
This price is reduced by 18% in a sale.

Work out the sale price.

$ ..... [2]

10 Calculate the circumference of a circle with radius 4.5 cm.

..... cm [2]

11 Write in standard form.

(a) 72 000

..... [1]

(b) 0.0018

..... [1]

12 Expand and simplify $(x+3)(x+5)$.

..... [2]

13 **(a)** $x^3 \times x^6 = x^m$

Find the value of m.

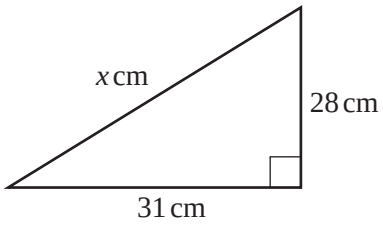
$m =$ ..... [1]

(b) $\left(x^2\right)^n = x^{12}$

Find the value of n.

$n =$ ..... [1]

14 The diagram shows a right-angled triangle.



NOT TO SCALE

Show that the value of x is 41.8, correct to 3 significant figures.

[2]

15 Davina records the colour of each car passing her house one morning.

red	grey	black	red	grey
white	white	black	black	white
grey	red	grey	white	grey
black	grey	black	white	grey

(a) Complete the frequency table.
You may use the tally column to help you.

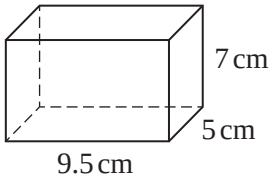
Colour of car	Tally	Frequency
Black		
Grey		
Red		
White		

[2]

(b) Write down the mode.

..... [1]

16 A cuboid measures 5 cm by 7 cm by 9.5 cm.



NOT TO SCALE

Work out the surface area of this cuboid.

..... cm^2 [3]

17 Work out.

(a) $\begin{pmatrix} -3 \\ 5 \end{pmatrix} + \begin{pmatrix} 2 \\ -4 \end{pmatrix}$

( ) [1]

(b) $\begin{pmatrix} 6 \\ 2 \end{pmatrix} - \begin{pmatrix} 1 \\ 5 \end{pmatrix}$

( ) [1]

(c) $4\begin{pmatrix} 2 \\ -5 \end{pmatrix}$

( ) [1]

18 Here is a list of ingredients to make 12 pancakes.

110 g	flour
2	eggs
200 ml	milk
50 g	butter

Complete the list of ingredients below to make 30 pancakes.

..... g flour

..... eggs

..... ml milk

..... g butter

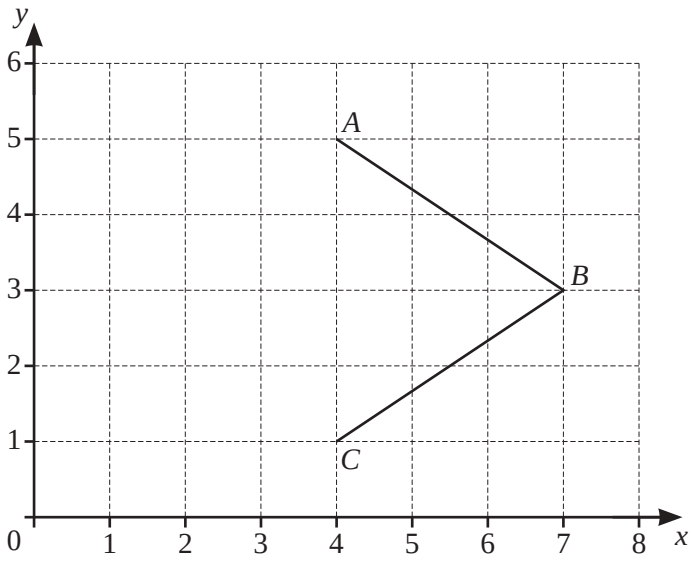
[3]

19 The mean of three numbers is 150.
The numbers are 361, $2n$ and $(n-1)$.

Find the value of n.

$n =$ ..... [3]

20



(a) Write down the co-ordinates of point *B*.

(..... , ...) [1]

(b) The quadrilateral *ABCD* has $x = 4$ as a line of symmetry.

On the grid, plot point *D*. [1]

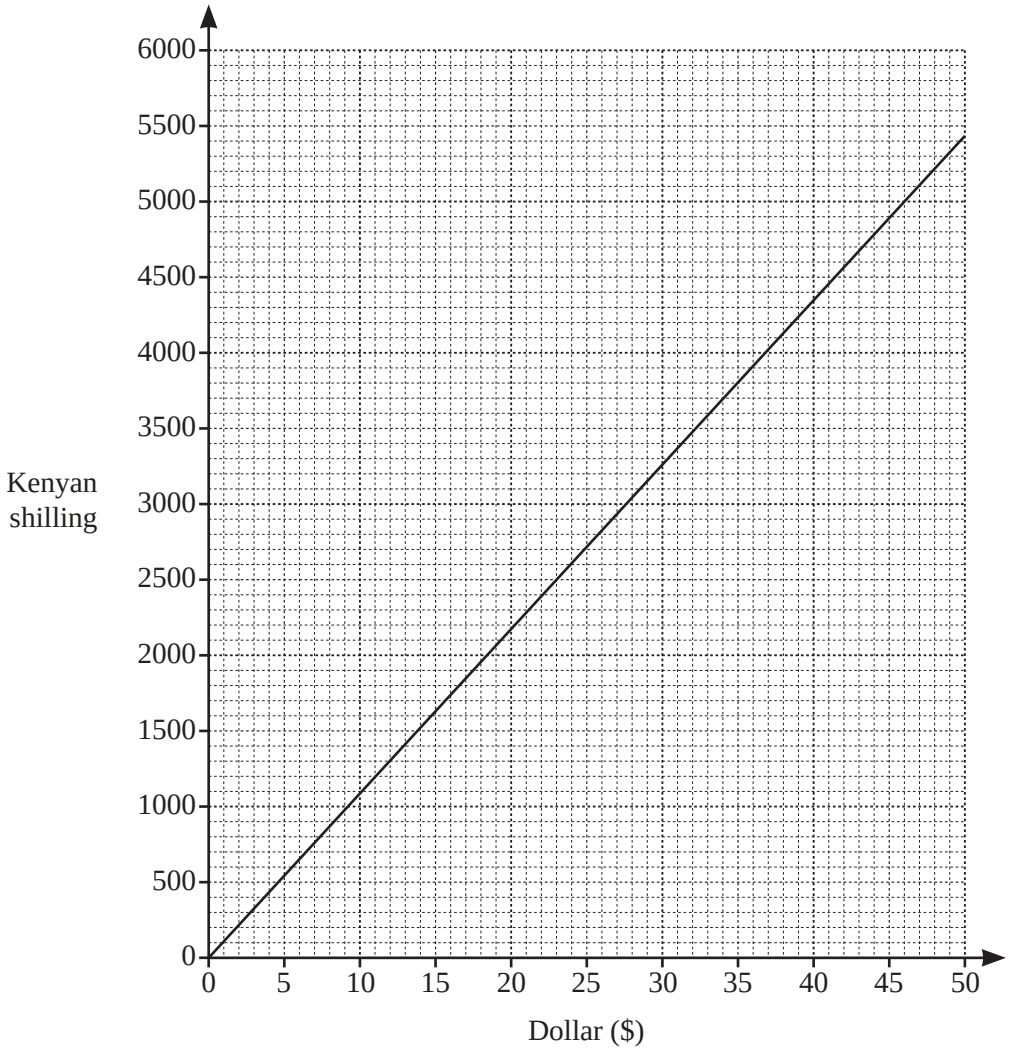
(c) Write down the mathematical name of quadrilateral *ABCD*.

..... [1]

(d) Write down the order of rotational symmetry of quadrilateral *ABCD*.

..... [1]

21 The diagram shows a conversion graph for dollars and Kenyan shillings.



(a) Use the graph to change 5000 shillings to dollars.

$..... [1]

(b) Explain how to use this graph to change $420 to shillings.

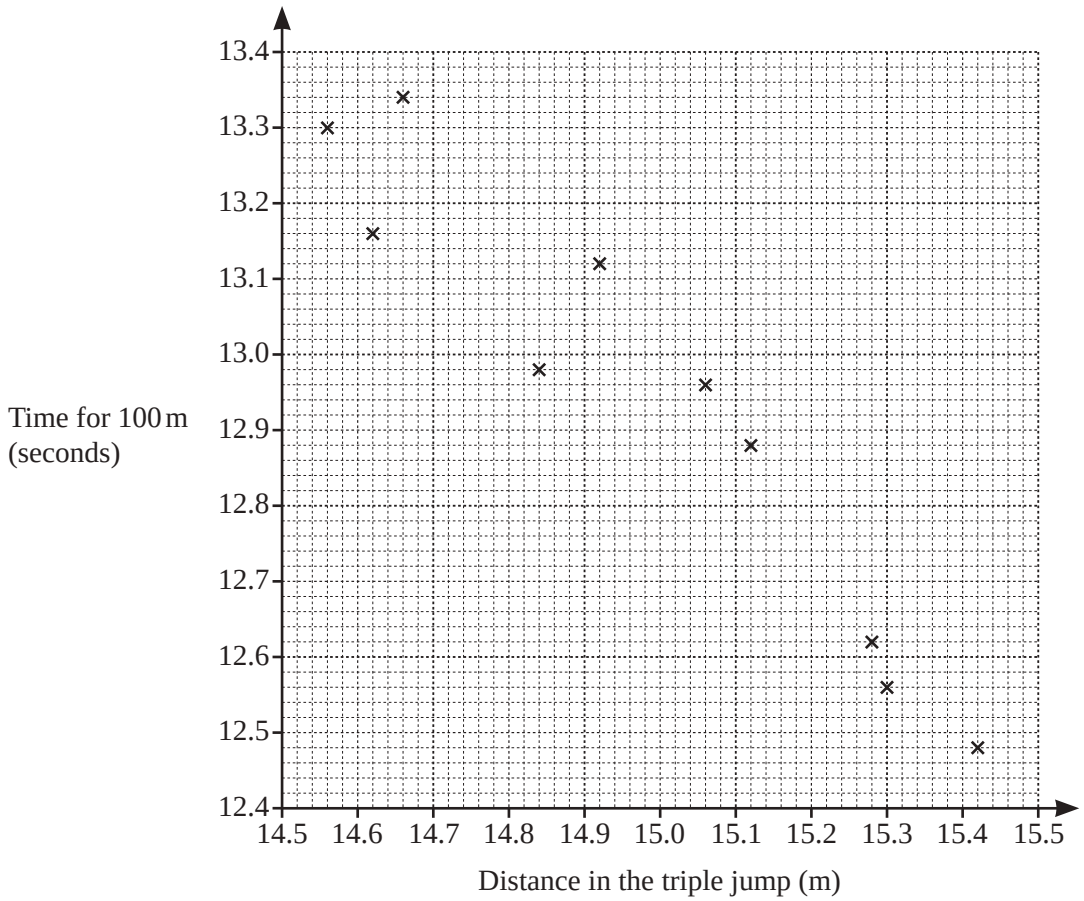
.....

..... [1]

(c) The exchange rate is now $1 = 90 shillings.

On the grid, draw another line to show this exchange rate. [2]

22 Ten athletes compete in both the 100 metre race and the triple jump.
Their results are shown in the scatter diagram.



(a) One of these athletes jumps 15.12 m in the triple jump.

Write down his time for the 100 metre race.

..... s [1]

(b) The values for two other athletes are shown in the table.

Distance in the triple jump (m)	14.74	15.2
Time for 100 m (seconds)	13.2	12.76

On the scatter diagram, plot these points. [1]

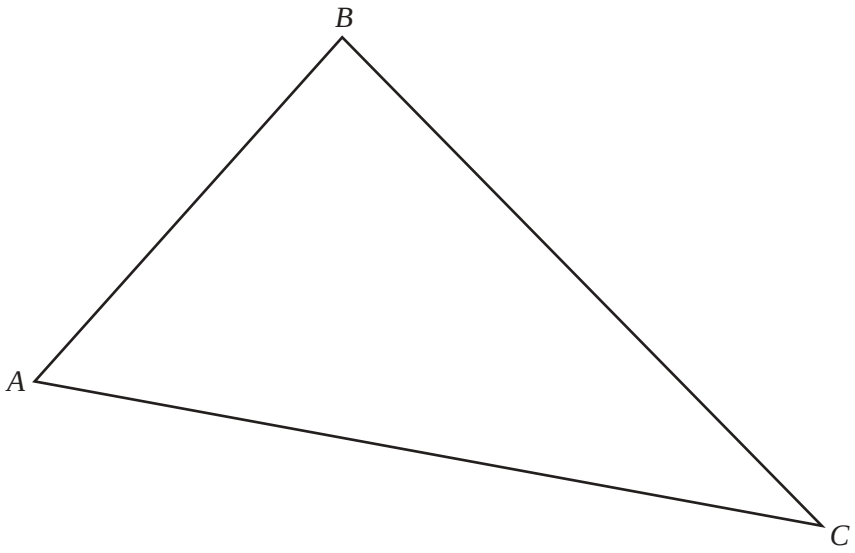
(c) On the scatter diagram, draw a line of best fit. [1]

(d) What type of correlation is shown in the scatter diagram?

..... [1]

Question 23 is printed on the next page.

23 The scale drawing shows a triangle *ABC*.
The scale is 1 centimetre represents 8 kilometres.



Scale : 1 cm to 8 km

(a) **Using a straight edge and compasses only**, construct the bisector of angle *BAC*.
Show all your construction arcs. [2]

(b) Draw the locus of points inside triangle *ABC* that are 56 km from *C*. [2]

(c) Shade the region inside triangle *ABC* that is

- more than 56 km from *C*

and

- nearer to *AC* than to *AB*.

[1]