Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

0178193090

MATHEMATICS **1112/02**

Paper 2 **April 2021**

1 hour

You must answer on the question paper.

You will need: Geometrical instruments
Tracing paper (optional)

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You should show all your working in the booklet.
- You may use a calculator.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages. Any blank pages are indicated.

1 Here is a list of symbols.

$<$ $>$ $=$

Choose the correct symbol from the list for each of these statements.

3.7 ..... 3.65

4.035 ..... 4.34

7.6 ..... 7.60

[1]

2 Draw a ring around the value of the digit 4 in the number 6.354

$\frac{4}{10}$ $\frac{4}{100}$ $\frac{4}{1000}$ $\frac{4}{10\,000}$

[1]

3 Solve.

$5x - 2 = 3(x + 4)$

$x =$ ..... [3]

4 Work out.

$$\frac{1+12^2}{2\times 3^2-13}$$

..... [1]

5 A plane flies between two cities 1836 km apart.
It travels at an average speed of 850 km/h.

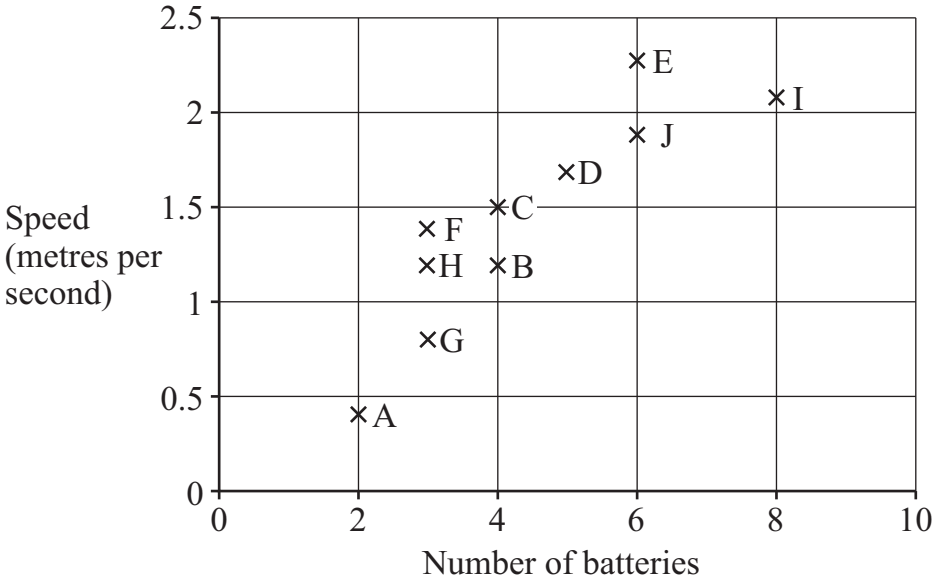
Calculate how long the flight takes.
Give your answer in hours.

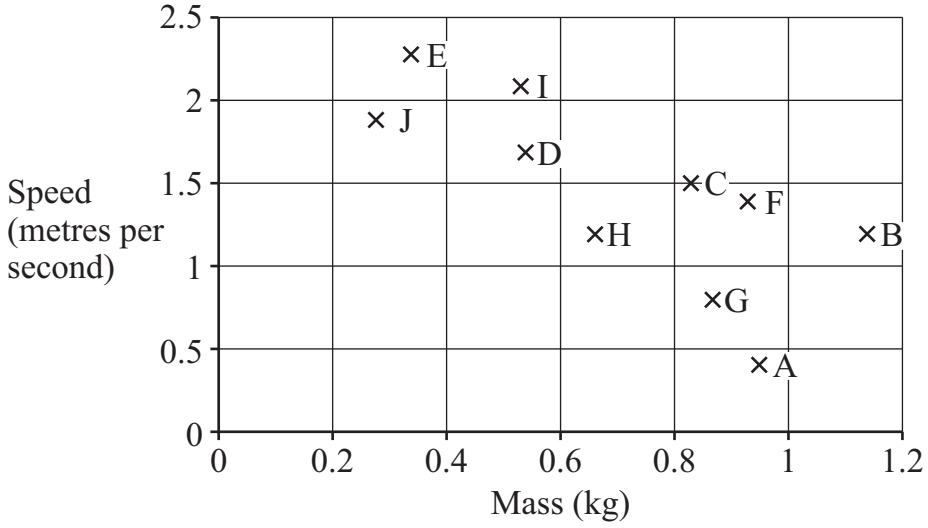
..... hours [2]

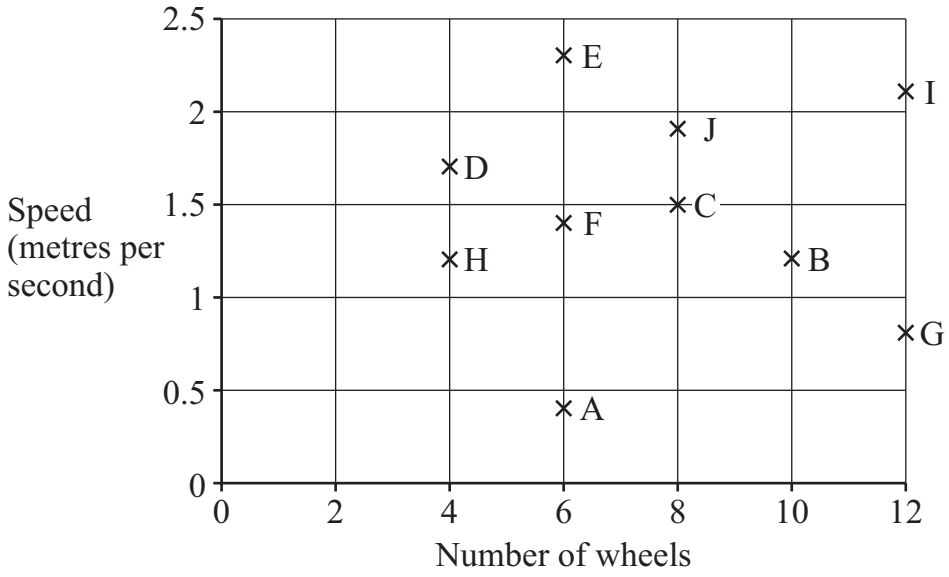
6 Ten teams (A to J) entered a competition to build a model car using plastic bricks.

Competition rules:
(1) The maximum number of batteries to power the model car is 6
(2) The maximum mass of the model car is 1 kg.
(3) The winner is the model car with the greatest speed.

The scatter graphs show some information about the model cars built by the 10 teams.







(a) Complete these sentences.

Team ..... wins the competition.

Teams ..... and ..... are disqualified for breaking the competition rules.

[2]

(b) Complete these sentences to describe the type of correlation shown on these three graphs.

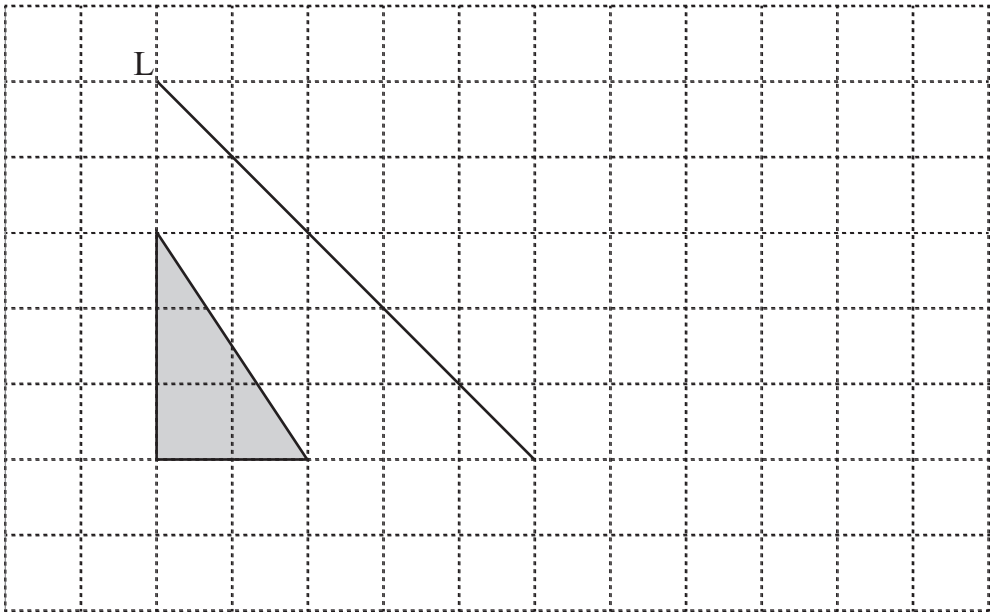
The graph of speed plotted against the number of batteries shows ..... correlation.

The graph of speed plotted against the mass shows ..... correlation.

The graph of speed plotted against the number of wheels shows ..... correlation.

[2]

7 Draw the reflection of the triangle in line L.



[1]

8 Gabriella's book has 348 pages.
She has read 163 of the pages.

Safia's book has 562 pages.
She has read 225 of the pages.

Tick (✓) to show who has read the greater proportion of their book.
Show all your working.

Gabriella ☐ Safia ☐

[2]

9 The table shows information about a sequence of patterns made from rods.

Diagram				
Pattern number	1	2	3	4
Number of rods	3	5	7	

(a) Draw the diagram for pattern number 4 in the table.

[1]

(b) | − 1 | | + 1 | | + 2 | | + 3 | | ÷ 2 | | × 2 | | × 3 |

Choose two of these cards to complete the sentence describing the general term.

Number of rods needed = pattern number ☐ then ☐

[1]

10 Draw a ring around all the numbers that are greater than $\frac{11}{16}$ and less than $\frac{15}{16}$

0.45 0.55 0.65 0.75 0.85 0.95

[1]

11 Complete this calculation.

$$4^2 = 2 \times (\square + 3)$$

[1]

12 Write the ratio 75 cm : 1.8 m in its simplest form.

K

..... : ..... [2]

13 Lily pours 5 litres of water into glasses.
K Each glass holds 225 millilitres.

Calculate how many glasses Lily can fill completely.

..... [1]

14 Write 735 as the product of its prime factors.

K

..... [2]

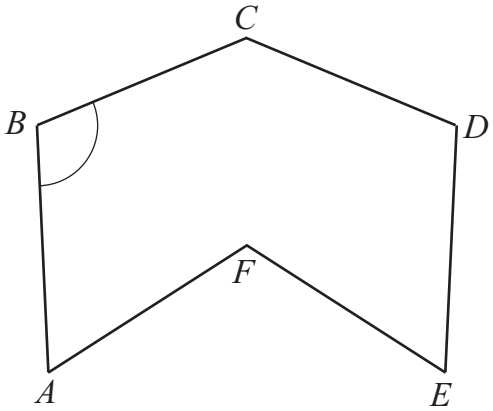
15 Write the answer to each calculation correct to two decimal places.

K

Calculation	Correct to two decimal places
45 ÷ 13	
103 ÷ 15	
17 ÷ 11	

[2]

16 *ABCDEF* is a hexagon.



(a) Measure angle *ABC*.

..... [1]

(b) *ABCDEF* is enlarged by scale factor 3.

Write down the size of angle *ABC* in the enlarged shape.

..... [1]

17 Angelique wants to find out how students in her class travel to school.

Design a **question** for her to find this data.
Include response boxes.

[2]

18 Some students choose their favourite drink from the six drinks shown in the table.
Some of the probabilities of the students choosing each drink are shown.

Drink	Tea	Coffee	Milk	Water	Cola	Orange
Probability	0.15	0.32		0.08		0.29

Three times as many students choose milk as choose cola.

Complete the table.

[2]

19 The exchange rate from euros (€) to dollars ($) is €1 = $1.2

Complete these conversions.

€160 to dollars.

$ .....

$76.80 to euros.

€ .....

[2]

20 A farm has 150 hectares of land.

Write this area in square metres.

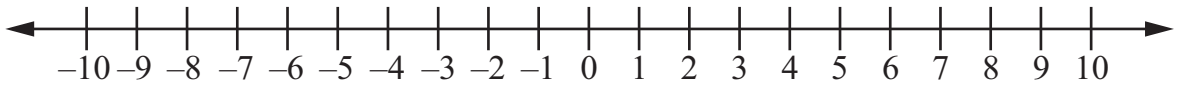
..... m^2 [1]

21 **(a)** Solve the inequality.

$$19 \leq 7 - 3x$$

..... [2]

(b) Represent the range of values for x on the number line.



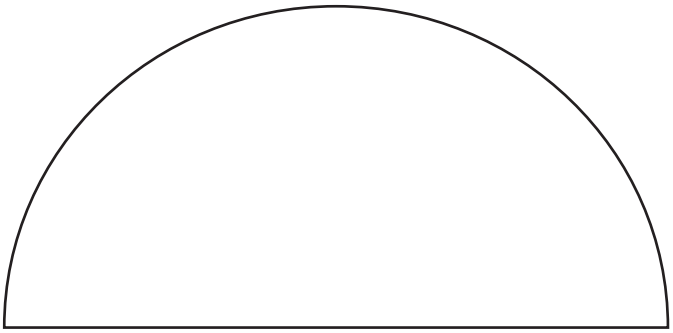
[1]

22 The original price of a television is reduced by 25%.
This new price is then increased by 25%.

Calculate the price of the television now as a percentage of the original price.

..... % [2]

23 The diagram shows a semicircle.



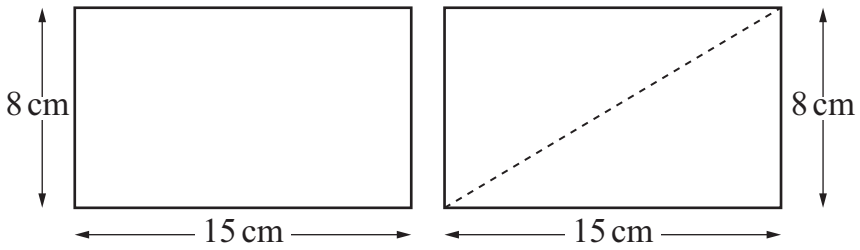
NOT TO SCALE

The diameter of the semicircle is 12 cm.

Calculate the perimeter of the semicircle.

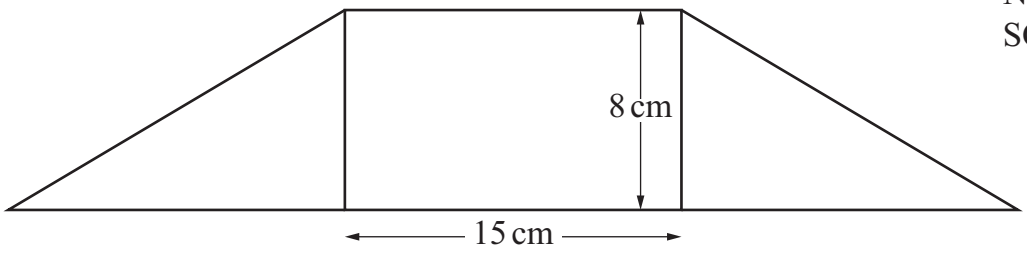
..... cm [2]

24 Here are two rectangles.



NOT TO SCALE

The second rectangle is cut in half and joined to the first rectangle to make a new shape.



NOT TO SCALE

Calculate the perimeter of the new shape.

..... cm [2]

25 The table shows the number of music downloads bought by 35 students during a year.

Number of music downloads	Frequency
0 – 4	5
5 – 9	16
10 – 14	11
15 – 19	3
>19	0

Write down the modal class.

..... [1]

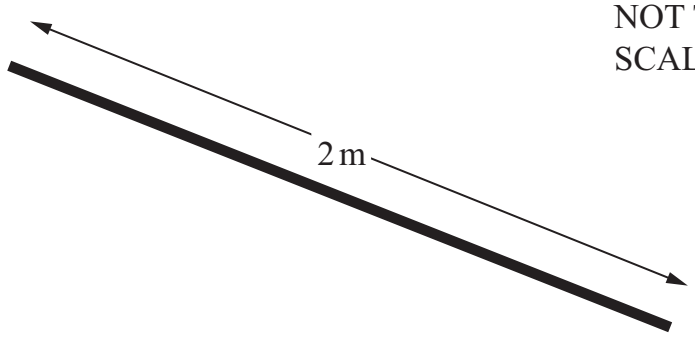
26 ■ and ✱ are positive integers.

■ is a factor of 15 ✱ is a multiple of 3

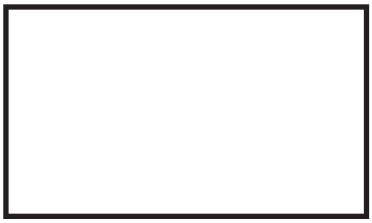
Write down the smallest possible answer to ■ × ✱.

..... [1]

27 Ahmed has a rod 2 metres long.



He cuts the rod into four pieces and uses them to make a rectangle.



NOT TO
SCALE

The length of the rectangle is 3 times the width.

Calculate the area of the rectangle in **square centimetres**.

..... cm^2 [3]

28 Tick (✓) the expression that is closest to the square root of $3a^6$

$1.5a^2$	☐
$1.5a^3$	☐
$1.7a^2$	☐
$1.7a^3$	☐
$3a^3$	☐

[1]