Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

2912725807

MATHEMATICS **1112/01**

Paper 1 **April 2022**

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 are **not** allowed to 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.

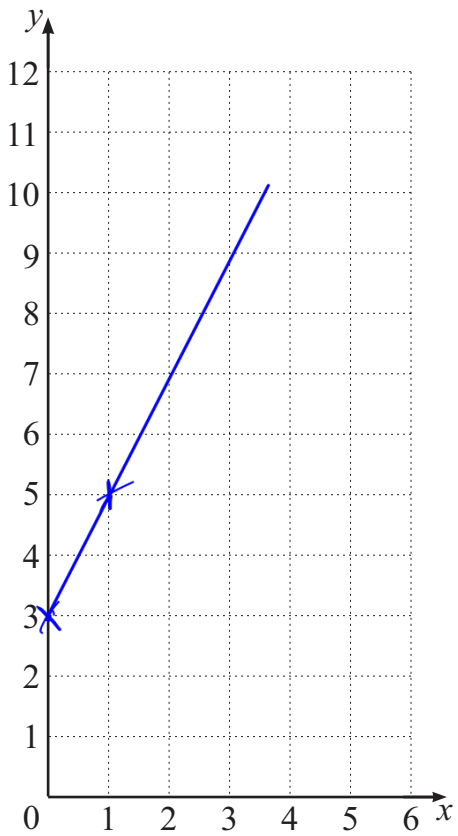
IB22 05_1112_01/6RP

1 **(a)** Complete the table of values for $y = 2x + 3$

x	0	1	2	3	4
y	3	5	7	9	11

[1]

(b) Draw the graph of $y = 2x + 3$



[2]

2 Chen has three pieces of metal.
The masses are 6 kg, 3.3 kg and 0.75 kg.

Work out the total mass, in kilograms.

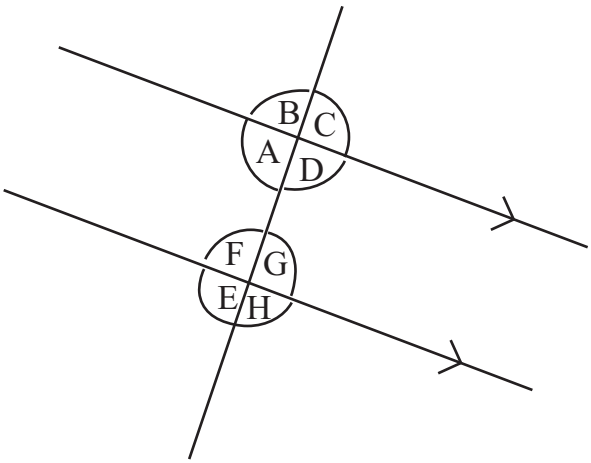
$6 + 3.3 + 0.75 = 10.05$

10.05 kg [1]

3 Write out $\frac{3}{5}$ as a decimal.

0.6 [1]

4 The diagram shows a straight line crossing two parallel lines.
There are no right angles in the diagram.



NOT TO SCALE

Tick (✓) to show if each of these statements are true or false.

	True	False
Angle A is the same size as angle E.	✓	
Angle C is the same size as angle H.		✓
Angle A and angle F are alternate angles.		✓

[1]

5 Work out the value of $\sqrt{49} + 6^2$

$= 7 + 36$

$= 43$

43 [1]

6 Complete these fraction calculations.

(a)

$$\frac{2}{3} - \frac{1}{4} = \frac{\boxed{5}}{12}$$

$\frac{8}{12} - \frac{3}{12} = \frac{5}{12}$

[1]

(b)

$$\frac{\boxed{3}}{8} + \frac{5}{12} = \frac{19}{24}$$

$\frac{\square}{8} = \frac{19}{24} - \frac{10}{24} = \frac{9}{24} = \frac{3}{8}$

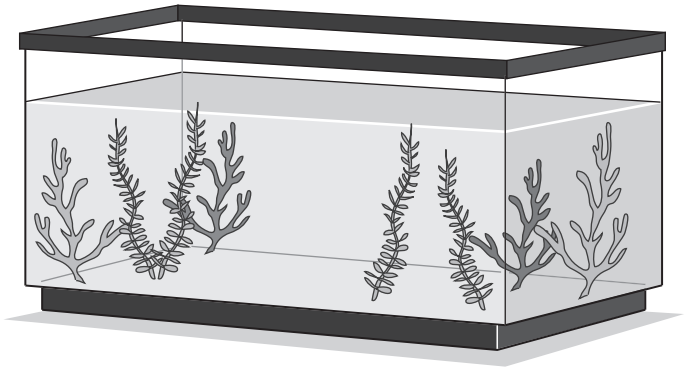
[1]

(c)

$$\frac{2}{\boxed{5}} + \frac{1}{\boxed{4}} = \frac{13}{20}$$

[1]

7



Samira is measuring the capacity of a fish tank.

Draw a ring around the most suitable unit for this measurement.

mm³ m³ *l* m*l*

[1]

8 The table shows some statistics for the number of words per page in two different books.

	Mean	**Range**
Book A	19.2	8
Book B	18.6	11

Complete the sentences using two words from the list.

A B means ranges

Book .....A..... has a more consistent number of words per page.

We know this from comparing the .....range..... . [1]

9 Angelique has 12 sweets.
Mia has 3 more sweets than Angelique.
Oliver has 5 less sweets than Mia.

Find how many sweets they have altogether.

Angelique : 12
Mia : 12 + 3 = 15
Oliver : 15 − 5 = 10

Total : 12 + 15 + 10 = 37

37 [1]

10 $a = 3b - c$

Find the value of a when $b = 11$ and $c = 4$

$a = 3 \times 11 - 4$
$= 29$

$a =$ 29 [1]

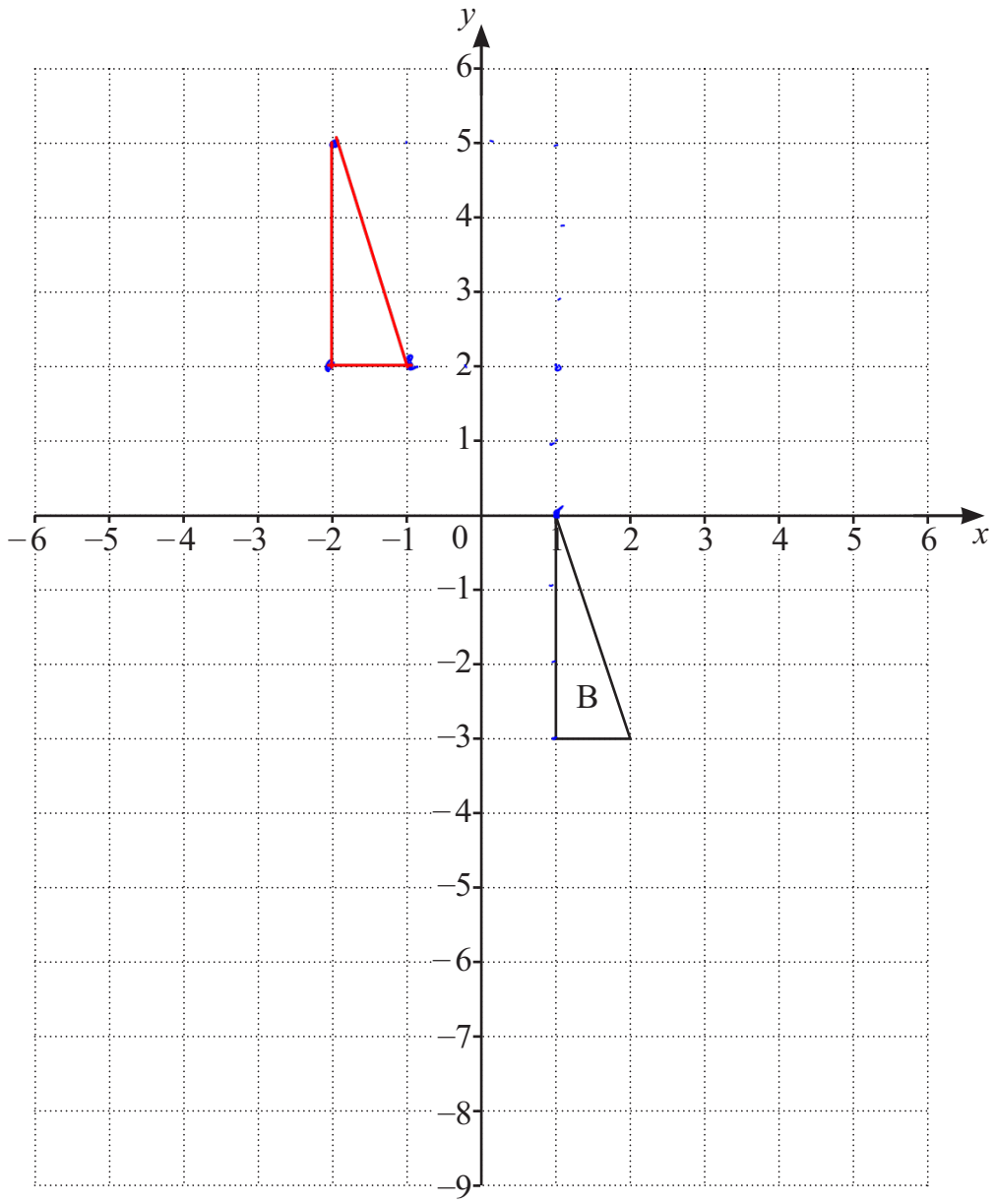
11 Here is a sequence of numbers.

80, 40, 20, 10…

Find the term-to-term rule for this sequence.

Divide by 2 [1]

12 Triangle B is drawn on the grid.



Triangle **A** is translated 3 right and 5 down to give triangle B.

Draw and label triangle A on the grid. [2]

A → B: 3 →, 5 ↓

B → A: 5 ↑, 3 ←

13 Simplify these expressions.

$9x + 2y - 4x - 8y$

$= (9x - 4x) + (2y - 8y)$

$= 5x - 6y$

.....5x - 6y.....

$3 + 2(5x - 6)$

$= 3 + 10x - 12$

$= 10x - 9$

.....10x - 9.....

[3]

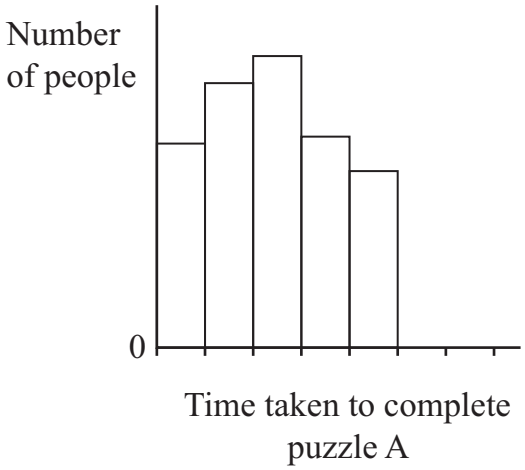
14 Mike throws an ordinary 6-sided dice and spins a coin at the same time.
One possible outcome is a 4 and a tail.

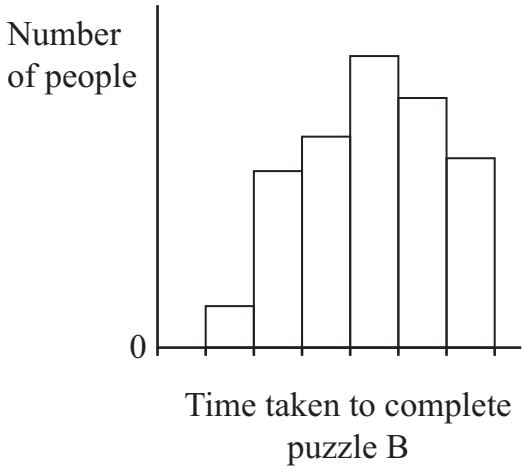
Work out the total number of possible outcomes.

$6 \times 2 = 12$

.....12..... [1]

15 A group of people each complete two puzzles, A and B.
The time taken for each person to complete the puzzles is recorded.
The results are shown on the graphs.
The scales on each graph are the same.





Complete the sentence.

The graphs show that puzzle ..... B ..... is more difficult because ..... B has .....

..... higher mean ..... [1]

16 Write 31.4649

(a) correct to two decimal places,

..... 31.46 ..... [1]

(b) correct to one significant figure.

..... 30 ..... [1]

17 The area of a rectangle is 30 cm^2.

Work out this area in mm^2.

..... 3000 ..... mm^2 [1]

18 A bag contains some counters.
Each counter is either red or green or yellow or blue.

A counter is taken from the bag at random.
The table shows the probabilities of taking a red counter, a green counter and a yellow counter.

Colour	Red	Green	Yellow	Blue
Probability	0.25	0.5	0.15	

Tick (✓) to show if each of these statements is true, false or whether you cannot tell.

	True	False	Cannot tell
One quarter of the counters in the bag are red.	✓		
The bag contains 100 counters altogether.			✓
The bag contains more blue counters than yellow.		✓	

[2]

19 Here is a five-digit number with one digit missing.

3__567

The five-digit number is a multiple of 9

Work out the missing digit.

$3 + ? + 5 + 6 + 7 \vdots 9$

$? + 21 \vdots 9$

$? = 6$

..... 6 ..... [1]

20 Here are the heights, h metres, of 15 students in Mia's class.

1.56 1.49 1.05 1.75 1.63 1.47 1.25 1.93

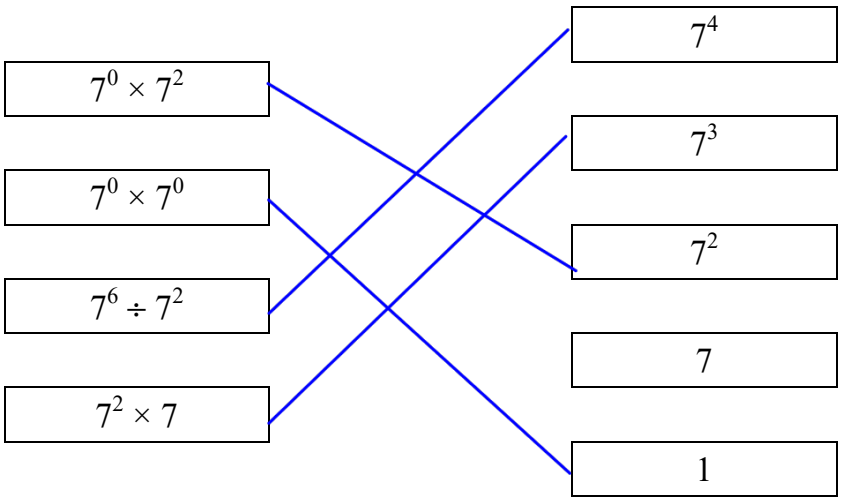
1.16 1.45 1.29 1.40 1.02 1.67 1.72

Use the data to complete the group, tally and frequency columns in the table.
All group intervals must have equal width.

Group	Tally	Frequency
$1.00 < h \leq 1.20$	///	3
$< h \leq$	///	3
$< h \leq$	////	4
$< h \leq$	////	4
$1.80 < h \leq 2.00$	/	1

[2]

21 Draw a line to match each calculation to the correct value.



[2]

22 The area of a piece of land is 4.5 hectares.

Convert 4.5 hectares into square metres.

1 hectar = 10 000 m^2

4.5 hectars = 45 000 m^2

45 000 m^2 [1]

23 Solve these simultaneous equations.

$5x + 2y = 26$
$10x - y = 37$

Use an algebraic method to work out your answer.

$5x + 2y = 26$

$20x - 2y = 74$

$25x = 26 + 74 = 100$

$x = 4$

$y = 3$

$x =$ 4

$y =$ 3 [3]

24 Calculate.

(a) $4.5^2 \times 2^2$

$= (4.5 \times 2)^2$

$= 9^2 = 81$

81 [2]

(b) $\dfrac{28\times16+14\times16}{14}$

$\dfrac{(28 + 14) \times 16}{14} = \dfrac{42 \times 16}{14} = 3 \times 16 = 48$

48 [2]

25 Here is a number fact.

$$5478 \times 64 = 350\,592$$

Use this to work out

54.78×6.4

$\frac{5478}{100} \times \frac{64}{10} = \frac{5478 \times 64}{1000} = 350.592$

350.592

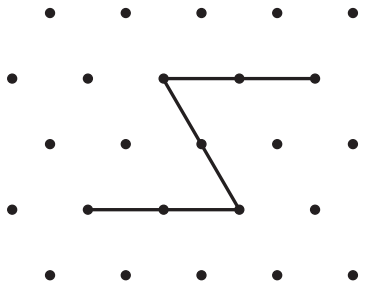
$3505.92 \div 64$

$\frac{350592}{100} \div 64 = \frac{350592 \div 64}{100} = 54.78$

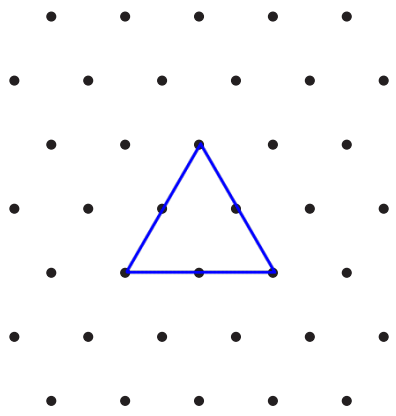
54.78

[2]

26 Naomi uses **three** lines to make a pattern by connecting dots on a grid.
The pattern has rotational symmetry but no line symmetry.



Use **three** lines to make a pattern with rotational symmetry and line symmetry.



[1]

27 Work out.

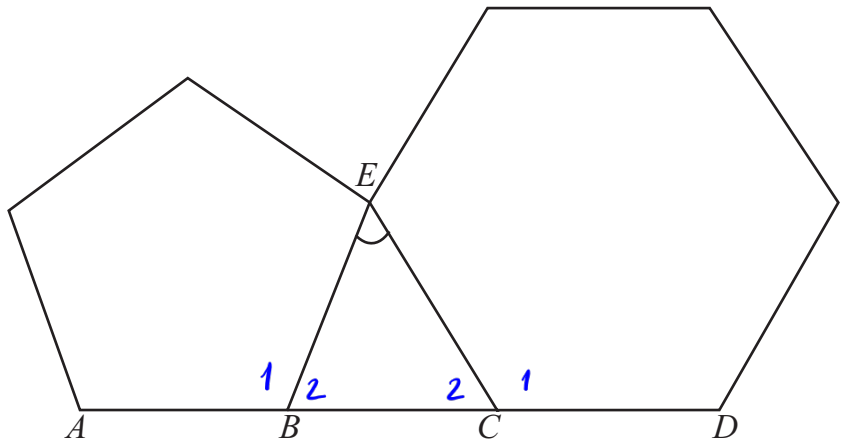
$72 \times 10^5 \times 10^{-6}$

$= 72 \times 10^{-1}$

$= 7.2$

7.2 [1]

28 The diagram shows a regular pentagon and a regular hexagon.



NOT TO SCALE

A, *B* and *E* are vertices of the pentagon.
C, *D* and *E* are vertices of the hexagon.
ABCD is a straight line.

Calculate the size of angle *BEC*.

$\hat{B}_1 = 180° - \frac{360°}{5} = 108° \rightarrow \hat{B}_2 = 72°$

$\hat{C}_1 = 180° - \frac{360°}{6} = 120° \rightarrow \hat{C}_2 = 60°$

$\widehat{BEC} = 180° - \hat{B}_2 - \hat{C}_2 = 180° - 72° - 60° = 48°$

48 ° [3]

29 Yuri tries to convert some fractions to their **simplest form**.

Tick (✓) to show if his answers are correct or incorrect.

	Correct	Incorrect
$\frac{16}{48} = \frac{2}{6}$	☐	✓
$\frac{14}{56} = \frac{1}{7}$	☐	✓
$\frac{17}{68} = \frac{1}{4}$	✓	☐

[1]

30 52% of the students in a school are girls.
50% of the girls play a musical instrument.
25% of the boys play a musical instrument.

Work out the percentage of students in the whole school that play a musical instrument.

% boys : 48 %

% girls playing a musical instrument : 50 % × 52 % = 26 %

% boys playing a musical instrument : 25 % × 48 % = 12 %

% total playing a musical instrument : 26 % + 12 % = 38 %

.....38..... % [2]