Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

4311629126

MATHEMATICS **1112/01**

Paper 1 **October 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 **20** pages. Any blank pages are indicated.

IB22 10_1112_01/8RP

1 Anastasia collects information to investigate this statement.

Older teachers pay more for their cars than younger teachers.

Tick (✓) the **two** items that are most relevant to her investigation.

if the teacher is male or female	☐
the age of the teacher	✓
the subject the teacher teaches	☐
the price the teacher paid for their car	✓

[1]

2 Oliver throws a ball at a basketball hoop 20 times.
He scores a basket 7 times.
He misses the basket 13 times.

Use this information to estimate the probability of Oliver scoring a basket.

$\frac{7}{20}$

..... $\frac{7}{20}$ ..... [1]

3 When Eva works for h hours she earns $25h$ dollars.

Work out how much she earns when she works for 10 hours.

1 hour $25

10 hours $250

..... 250 ..... dollars [1]

2000 ml

4 Youssef has a 2-litre bottle of water.
He pours the water into 50 m*l* glasses.

Work out how many glasses Youssef could completely fill.

$\frac{2000}{50} = 40$

40 [1]

5 Here are the costs of buying theatre tickets from a booking agency.

Adult ticket	\$65 each
Child ticket	\$45 each

Hassam buys two adult tickets and two child tickets.
The booking agency charges an extra 5% of the total cost as a booking fee.

Work out how much Hassam pays altogether.

Total cost: $2 \times 65 + 2 \times 45 = 220$

Booking fee: $5\% \times 220 = 11$

He has to pay: $220 + 11 = 231$

\$ 231 [3]

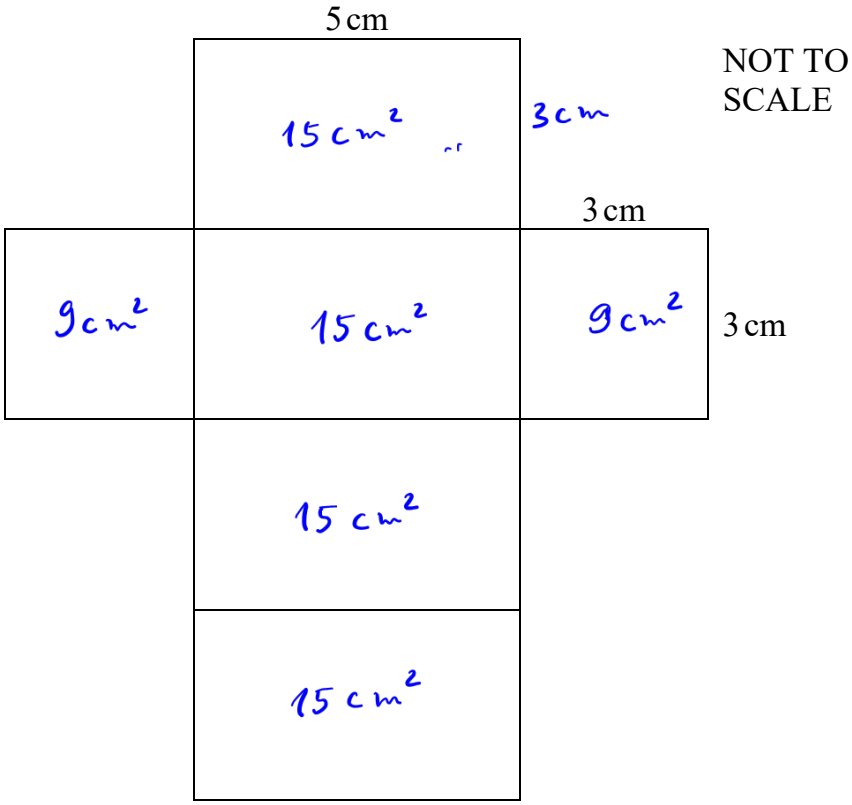
6 Work out $6\frac{1}{4} \div 1\frac{2}{3}$

Give your answer as a mixed number in its simplest form.

$\frac{25}{4} : \frac{5}{3} = \frac{25}{4} \times \frac{3}{5} = \frac{5 \times 3}{4} = \frac{15}{4} = 3\frac{3}{4}$

.....$3\frac{3}{4}$..... [3]

7 Here is the net of a cuboid.



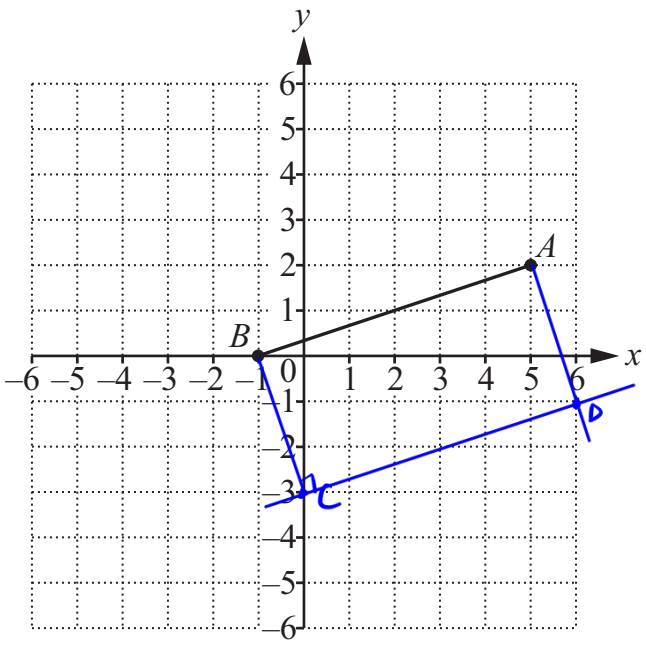
NOT TO SCALE

Work out the surface area of the cuboid.

$15 \times 4 + 9 \times 2 = 60 + 18 = 78$

.....78..... cm^2 [2]

8 Line AB is shown on the grid.



(a) Plot the point (0, –3) on the grid.
Label it C.

[1]

(b) $ABCD$ is a rectangle.

Write down the coordinates of D.

$D = (\ldots 6 \ldots , \ldots -1 \ldots)$ [1]

9 Complete the multiplication grid.

×	6	8	9
4	24	32	36
7	42	56	63

[1]

10 Write these measurements in order from smallest to largest.

0.13 km	30 m	200 m	0.127 km
130 m			127 m

30 m , 0.127 km , 0.13 km , 200 m

smallest largest

[1]

11 Babies born at a hospital are described as having Low or Medium or High mass at birth.
The table shows some information about 200 babies born at the hospital last month.

(a) Fill in the missing values in the table.

	Male	Female	**Total**
Low mass	18	22	
Medium mass	46		**106**
High mass			
Total	**90**		**200**

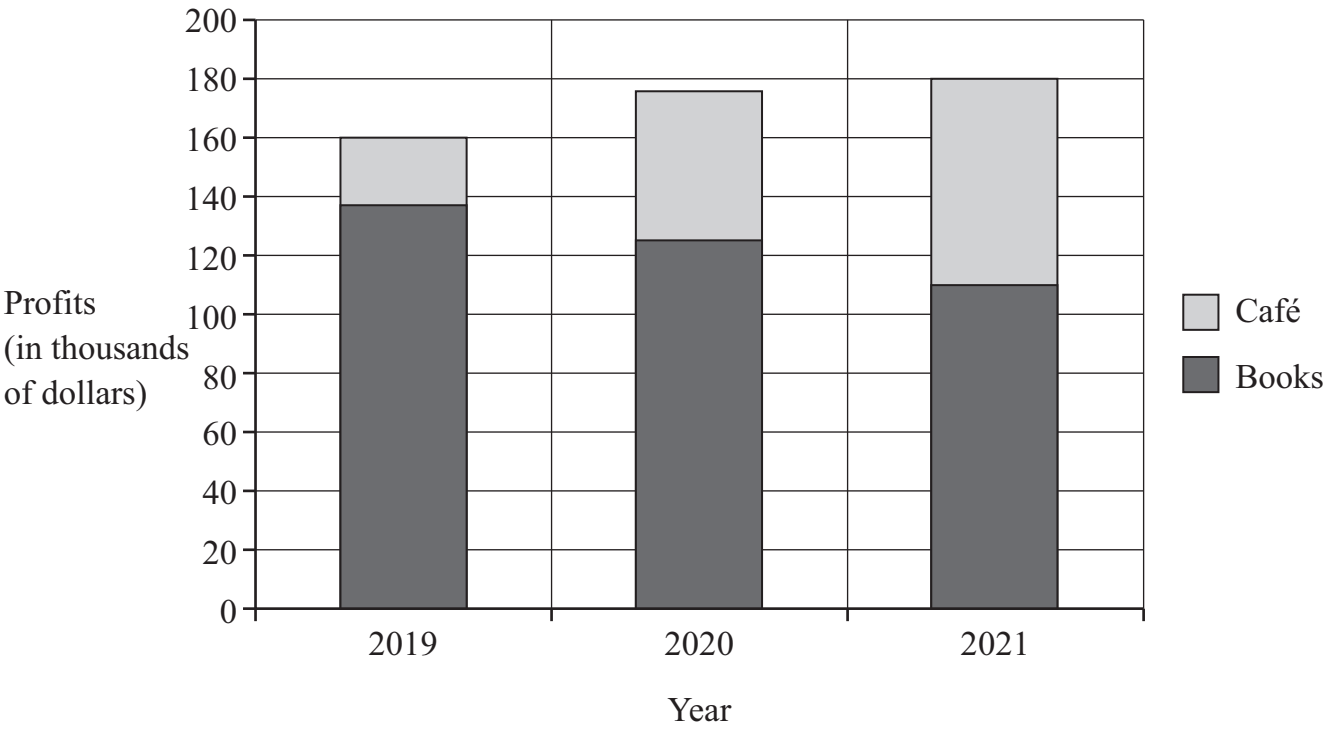
[2]

(b) One of the **male** babies is chosen at random.

Find the probability he has a Medium mass.

$\frac{46}{90}$ [2]

12 Samira owns a bookshop.
She makes money from the café in the shop as well as from selling books.
The bar chart shows Samira's profits between 2019 and 2021



Samira says, 'My total profits have increased between 2019 and 2021'

Write down one other comment to describe how her profits have changed between 2019 and 2021

The profits from selling books decreased between 2019 and 2021 [1]

13 Draw a ring around the fraction that is the largest.

$\frac{7}{10}$ $\frac{19}{30}$ $\frac{11}{15}$ $\frac{2}{3}$

$\frac{7}{10} = \frac{21}{30}$ $\frac{11}{15} = \frac{22}{30}$ $\frac{2}{3} = \frac{20}{30}$

[1]

14 Find the highest common factor of 39 and 52

13 [1]

15 Simplify.

$3m - 8n + 7m + 5n$

$= (3m + 7m) + (5n - 8n)$

$= 10m - 3n$ $10n - 3n$

Expand the brackets.

$4x(7x - 3)$

$28x^2 - 12x$

[2]

16 Work out.

$4.2 \times 3.6 + 4.2 \times 6.4$

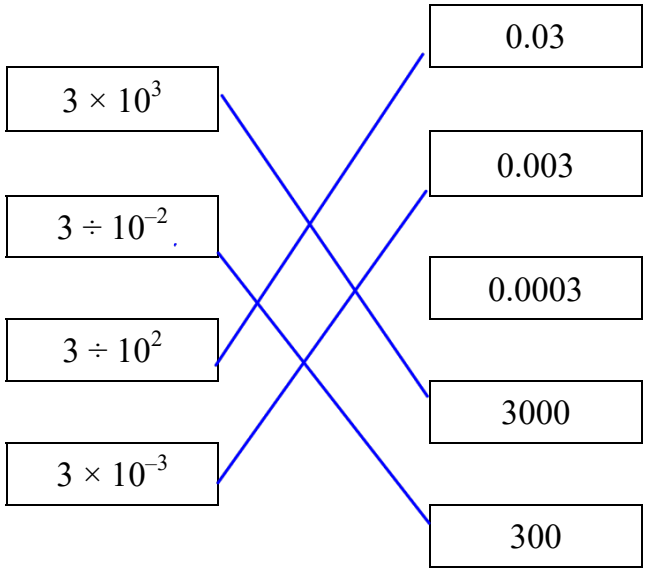
$= 4.2(3.6 + 6.4)$

$= 4.2 \times 10$

$= 42$

42 [2]

17 Draw a line to match each calculation to its correct answer.



[2]

18 Here is a sequence.

position: 1 2 3 4 5

7, 11, 15, 19, 23, …

+4 +4 +4 +4

Find the *n*th term for this sequence.

1 $7 + 4 \times 0$

2 $7 + 4 \times 1$

3 $7 + 4 \times 2$

4 $7 + 4 \times 3$

$7 + 4 \times (n - 1)$

$4n + 3$

4n + 3 [2]

19 Draw a ring around the number that is nearest in value to the square root of 74

√74

8.1 5500 8.6 4900 9

64.

[1]

20 A box of grapes costs $1.60

Work out the cost of 30 boxes of grapes.

30 × 1.6 = 48

$ 48 [1]

21 Write the missing index number in the box.

$$\frac{x^7 \times x^{\boxed{5}}}{x^4} = x^8$$

$x^{7+?-4} = x^8$

$3 + ? = 8$

$? = 5$

[1]

22 Lily is trying to find out if boys or girls scored generally higher marks in a test.
She decides to find the mode, the mean and the range for each group.
Here are the results of her calculations.

	Boys	Girls
Mode	52	41
Mean	38.4	41.2
Range	40	36

Put a tick (✓) next to the group with the generally higher marks.

Boys [ ] Girls [✓]

Explain your answer.

Girls have higher mean than boys

[1]

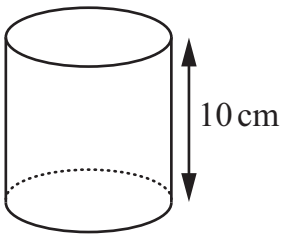
23 Draw a ring around the **incorrect** statement.

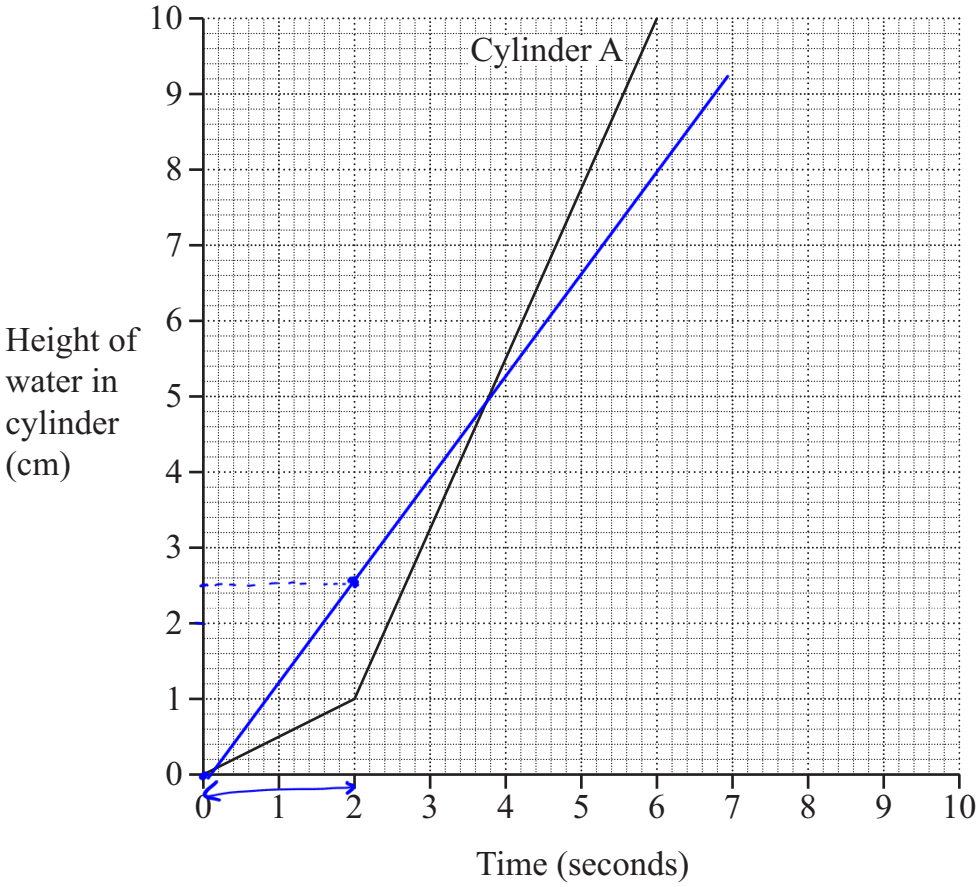
$x + y - m = x - m + y$ $\qquad$ $x + a - b = b - a + x$

$t \times m \times c = c \times t \times m$ $\qquad$ $(v + w) \div x = (w + v) \div x$

[1]

24 Cylinder A has a height of 10 cm.
It is being filled with water.
The graph shows how the height, in cm, of water in the cylinder changes with the time, in seconds, as cylinder A is filled.

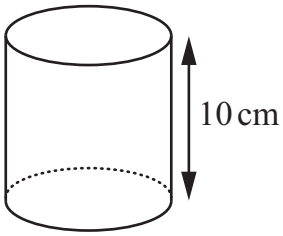




(a) Describe what the graph shows about the change in height of water **after** 2 seconds compared with before 2 seconds.

The water level increases faster [1]

(b) Cylinder B is identical to Cylinder A.



Cylinder B is filled with water so that the height of water increases at a constant rate of 1.25 cm per second. 2.5 cm per 2 seconds

Show this information on the same grid. [2]

25 A cyclist leaves home at 08:35
He travels 49 kilometres at an average speed of 14 kilometres per hour. [2]

Work out the time that he finishes his journey.

$\frac{49}{14} = 3.5$ (hour)

8 : 35 + 3h 30′ = 12 : 05

12 : 05 [2]

26 Work out.

$(23 - 3 \times 3)^2$

$= (23 - 9)^2$

$= 14^2$

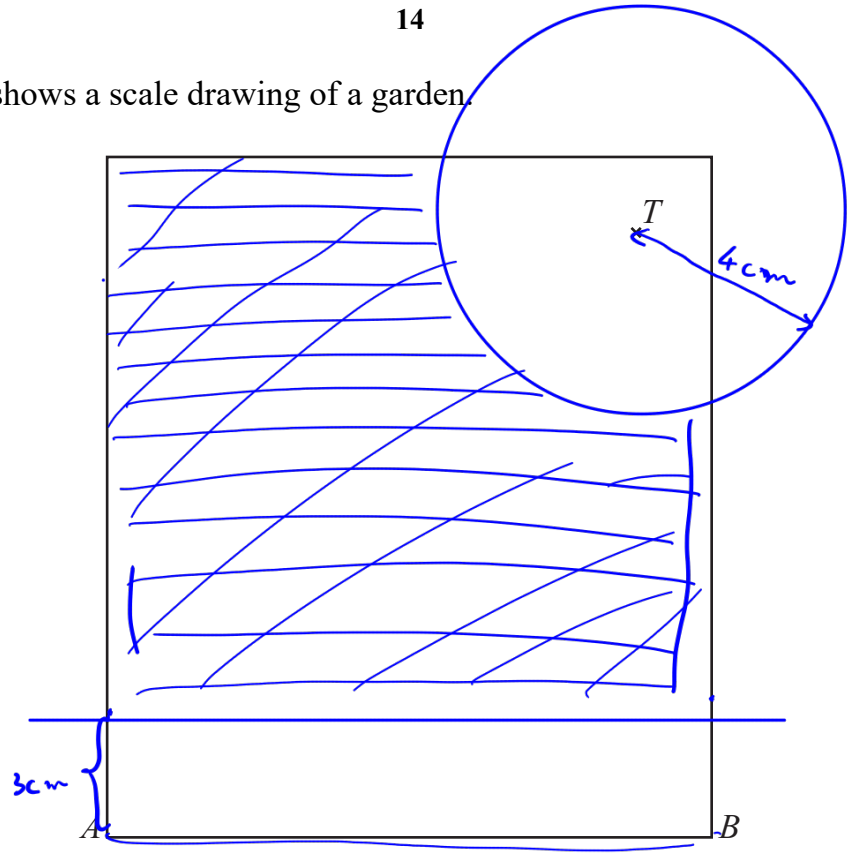
196

27 Draw a ring around the two calculations that have an answer smaller than 73

73×0.26 $\quad 73 \div \frac{2}{15}$ $\quad 73 \div 0.49$ $\quad 73 \times \frac{3}{7}$

[1]

28 The diagram shows a scale drawing of a garden.



Scale: 1 centimetre represents 5 metres

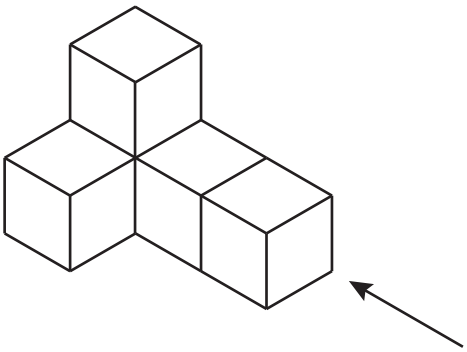
A shed is going to be put in the garden.

It must be:

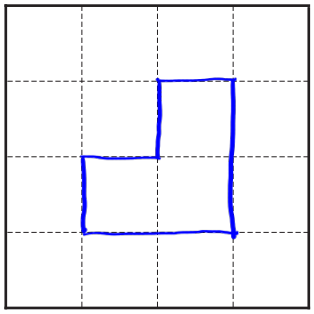
- at least 15 metres away from side AB, 3 cm
- at least 20 metres away from the tree marked T. 4 cm

Shade the region where the shed can be built. [2]

29 The diagram shows a shape made from five identical cubes.

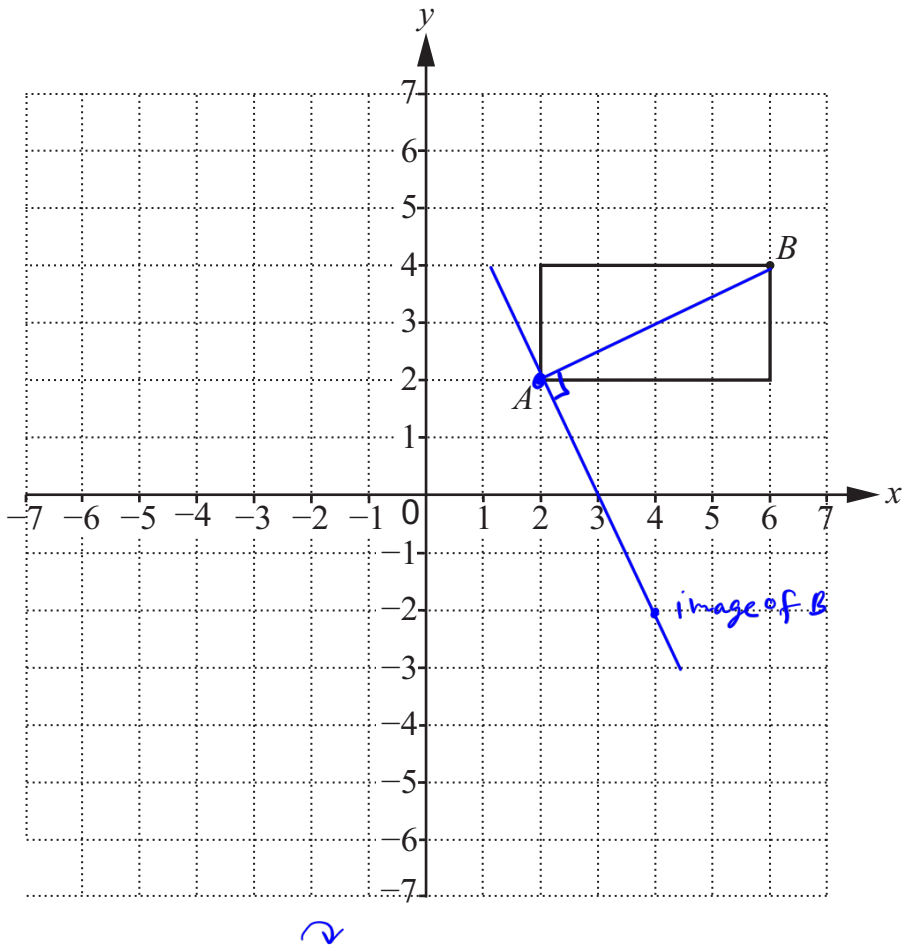


On the grid, draw the elevation in the direction of the arrow.



[1]

30 Here is a rectangle on a coordinate grid.



The rectangle is rotated 90° clockwise about vertex A.

Work out the coordinates of the image of vertex B.

(.....4..... , ...−2.....) [1]

31 a and b are two numbers where

$$0 < a < 1 \qquad \text{and} \qquad b > 1$$

Tick (✓) to show if each statement is true or false.

	True	False
$a - b < 0$	✓	
$a^2 > a$		✓
$ab > b$		✓
$\frac{b}{a} > b$	✓	

[2]