Cambridge Assessment International Education

Cambridge Lower Secondary Checkpoint

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

* 6 9 8 0 4 7 1 9 7 4 *

MATHEMATICS **1112/02**

Paper 2 **April 2020**

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. Blank pages are indicated.

IB20 05_1112_02/6RP

1 Calculate the square root of 74

Give your answer correct to 1 decimal place.

..... [1]

2 Simplify these expressions.

$f + f + f + f$

.....

$2y + 6 - y + 1$

.....

[2]

3 Simplify fully this ratio.

$12 : 30$

..... : ..... [1]

4 Some trees are planted in rows of 10

Complete the formula to find the total number of trees, t, in r rows.

$t =$ ..... [1]

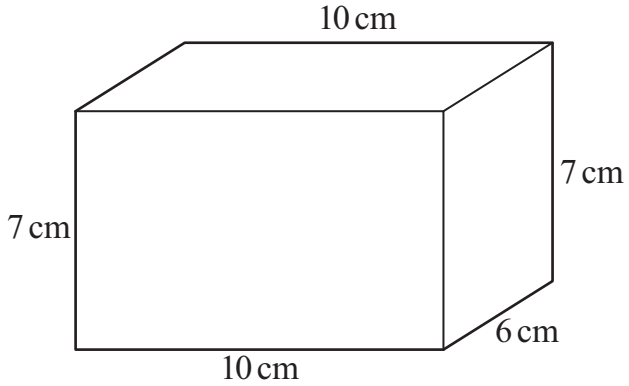
5 Chen rolls a dice and records the score each time.
The results are shown in the table.

Score	Frequency
1	9
2	14
3	2
4	12
5	8
6	5

Calculate his mean score.

..... [2]

6



NOT TO SCALE

Find the volume of the cuboid.

Give the units of your answer.

.... [2]

7 Work out.

$$(1 + 2.5)^2 - (1 + 2.5^2)$$

..... [1]

8 Here is a formula.

$$V = a(b - 5)^2$$

Work out the value of V when $a = 4$ and $b = 8$

$V =$ ..... [1]

9 Angelique travels 75 miles.
Jamila travels 115 kilometres.

Show that Angelique has travelled further than Jamila.

[1]

10 Expand.

$2a\,(2b - 3a)$

..... [2]

11 Write the missing numbers in the boxes.

$\square$ % of 250 = 75

75% of $\square$ = 300

[2]

12 These are the instructions on a box of grass seed.

1.5 kg of seed will cover an area of 48 m^2

Work out the amount of grass seed that is needed to cover an area of 256 m^2.

..... kg [2]

13 Round to two significant figures.

0.045 325

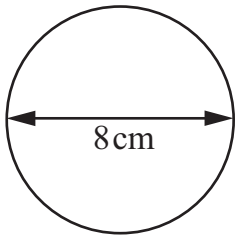
.....

16 872

.....

[2]

14 A circle has diameter 8 cm.



NOT TO SCALE

Calculate the circumference of the circle.

..... cm [2]

15 Find the value of x.

$$\frac{9^3 \times 9}{9^6} = 9^x$$

x = ... [1]

16 Here are some descriptions of how a variable y changes with time.

A The height (y) of water in a bath as someone gets in and then after a few minutes gets out and takes the plug out.

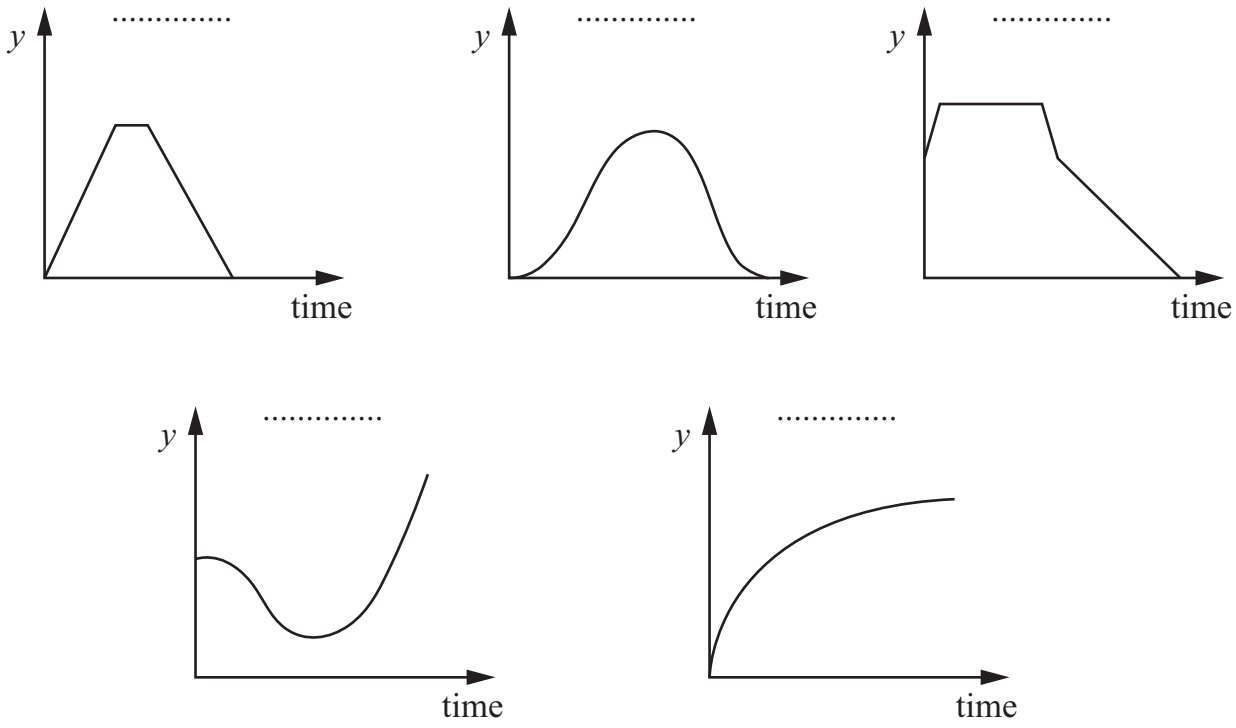
B The distance (y) travelled by a runner who starts very fast and gradually slows down.

C The speed (y) of a train which leaves a station, speeds up and then slows down to stop again at the next station.

D The distance from home (y) travelled by someone walking from home at a constant speed to a shop and then, after shopping, walking home again at a constant speed.

E The speed (y) of a cyclist who cycles slowly up a hill and then accelerates down the other side.

For each graph, write the letter of the description that best describes its shape.



[2]

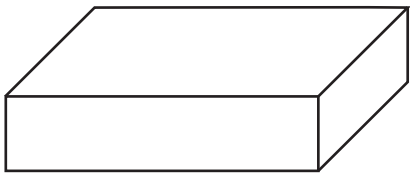
17 Factorise.

K $5b^2 - 3b$

..... [1]

18 The diagram shows a cuboid.

K The length, width and height of the cuboid are all different.



Write down the number of planes of symmetry of this cuboid.

..... [1]

19 D is directly proportional to T.
When $T = 3$, $D = 36$

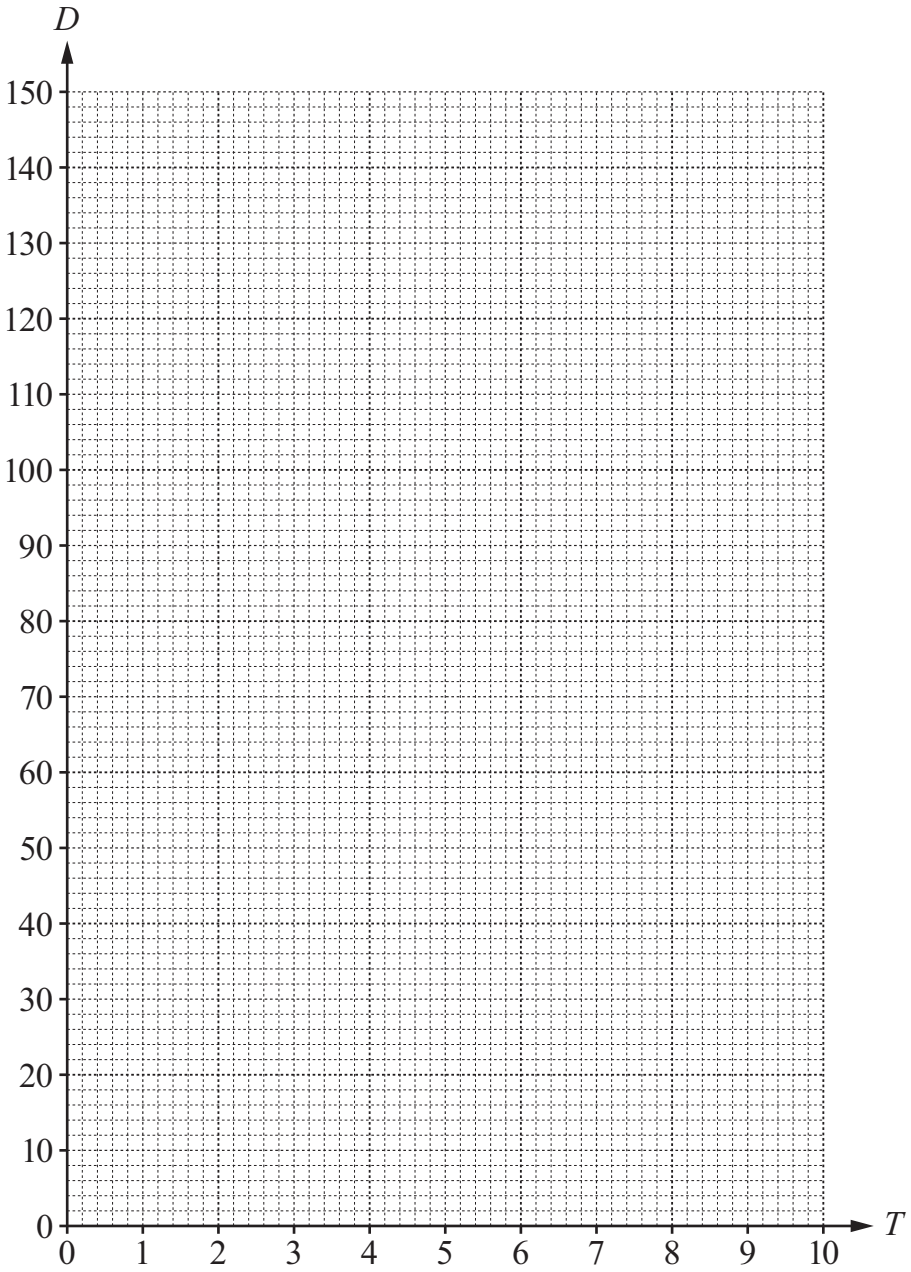
(a) Find the formula connecting D and T.

..... [1]

(b) Find T when D is 66

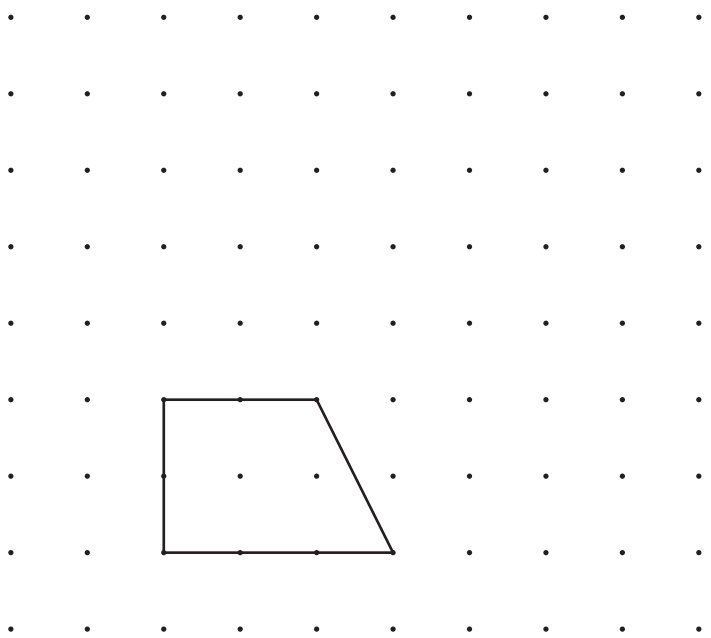
..... [1]

(c) Draw the graph of the relationship between D and T for $0 \leq T \leq 10$



[1]

20 A quadrilateral is drawn on the grid below.



Show how the quadrilateral tessellates.
Draw 5 more of these quadrilaterals.

[1]

21 Here are the coordinates of five points.

Cross (×) the point that is **not** on the line with equation $y = 5x - 3$

(8, 37) ☐

(–2, –7) ☐

(6, 27) ☐

(–5, –28) ☐

(0, –3) ☐

[1]

22 The table shows the mean and range of the number of customers at a restaurant on Mondays and Thursdays.

	Mean	**Range**
Mondays	34	14
Thursdays	41	20

The restaurant manager says,

'The number of customers on Mondays is less variable than on Thursdays.'

Explain why the manager is correct.

.....

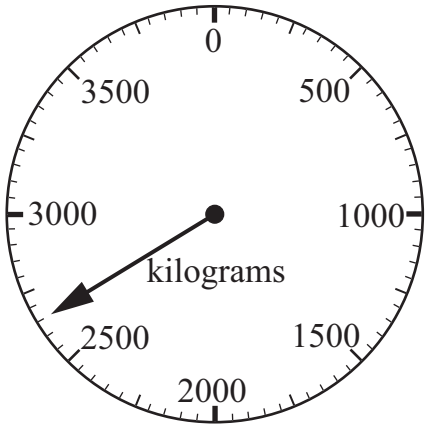
..... [1]

23 Convert $4\frac{2}{7}$ to a decimal.

Give your answer correct to 2 decimal places.

..... [1]

24 The scale shows the mass of a van.



Write down the mass of the van in **tonnes**.

..... tonnes [1]

25 Find the *n*th term for this sequence.

3, 8, 13, 18, 23 …

..... [2]

26 Here are some currency exchange rates.

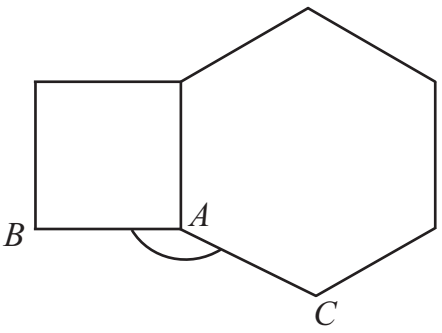
1 US dollar = 7.76 HK dollars

1 US dollar = 1.47 NZ dollars

Work out the value of 1000 HK dollars in NZ dollars.

..... NZ dollars [2]

27 A square and a regular hexagon are joined together along one edge.



NOT TO SCALE

Find angle *BAC*.

..... ° [2]

28 Mia buys 50 coats at \$28 each.
She sells 38 of these coats at \$49 each.
She sells the rest of the coats at \$40 each.

Find the overall percentage profit Mia has made on these coats.

..... % [3]

29 Hassan travels by bus to work every morning.
The bus is either green or blue or yellow.
The table shows information about the probabilities of each colour.

Colour of bus	Green	Blue	Yellow
Probability	$2x$	$2x$	x

(a) Calculate the value of x.

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

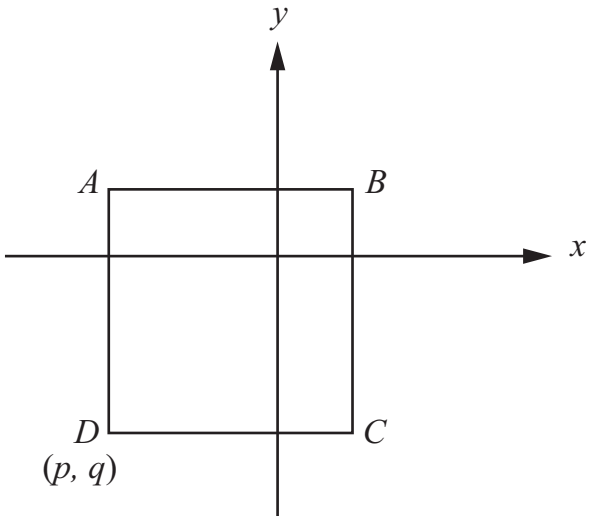
(b) Work out the probability that Hassan's bus is either blue or yellow.

..... [1]

30 Find the inverse function of $y = 3x$

$y =$ ..... [1]

31 $ABCD$ is a square with side length 8 units.
The coordinates of D are (p, q).



NOT TO SCALE

The square is translated so that point B moves to point D.

Write down the coordinates of the new point A in terms of p and q.

(..... , ...) [2]