LRN International GCSE: Mathematics (7131)

Candidate Name	
Candidate Number	
Centre Name	
Centre Number	

Paper 1: **For Examination December 2023**

(1 hour 30 minutes)

It is necessary to respond on this question paper. You must have a soft pencil (preferably of type B or HB),a clean eraser and a dark blue or black pen.

INSTRUCTIONS:

- You must write your name, candidate number, centre name and centre number in the designated spaces.
- Attempt all the questions using a dark blue or black pen.
- You may use a soft pencil for graphs.
- If working is needed for any question, it must be shown below that question.
- Do not use correction fluid.
- Avoid writing on any bar codes.
- You are allowed to use a calculator if needed.

INFORMATION:

- This paper has a total of 75 marks.
- The number of marks assigned for every question or its parts is indicated within brackets [ ].
- Rough work must be completed on this question paper.

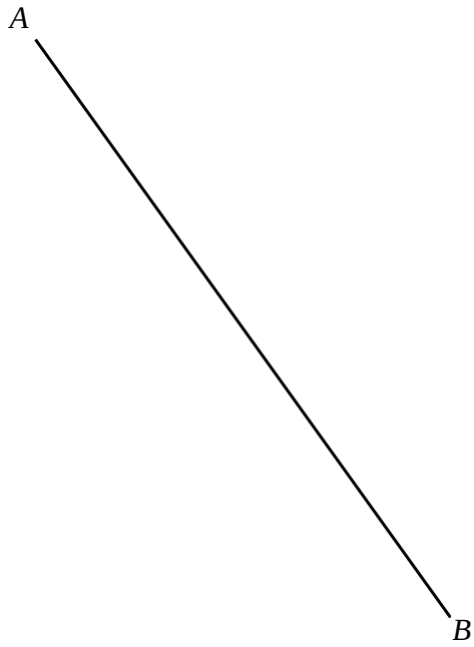
1 **(a)** Write 3:25 pm in the 24-hour clock.

..... [1]

(b) Work out the time 7 hours and 36 minutes before 13:26.

..... [1]

2



(a) Measure the length of the line *AB* in millimetres.

..... mm [1]

(b) *AB* is the diameter of a circle.

Draw this circle. [2]

3 **(a)** The temperature on Monday was -7 °C.
The temperature on Tuesday was 5 °C lower than on Monday.
The temperature on Wednesday was 8 °C higher than on Tuesday.

Find the temperature on Wednesday.

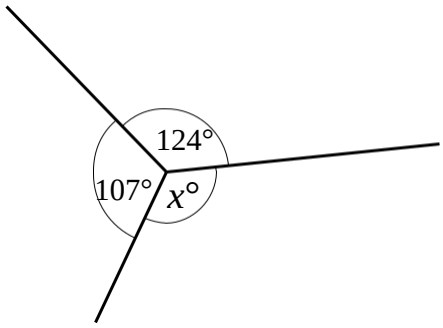
..... °C [2]

(b) Kyra has a faulty thermometer.
It always shows the temperature as 2 °C higher than the actual temperature. The temperature on the thermometer is T °C.

Write an expression, in terms of T, for the actual temperature.

..... °C [1]

4

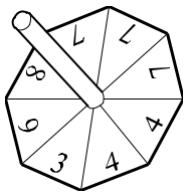


NOT TO SCALE

Work out the value of x.
Give a geometrical reason for your answer.

x = ... because ..... [2]

5 The diagram shows a fair 8-sided spinner.



The numbers on the spinner are 3, 4, 4, 7, 7, 7, 8 and 9.

(a) The spinner is spun once.

Write down the probability that the spinner lands on

(i) the number 7,

..... [1]

(ii) a number greater than 2.

..... [1]

(b) The spinner is spun 160 times.

Work out the expected number of times the spinner lands on the number 7.

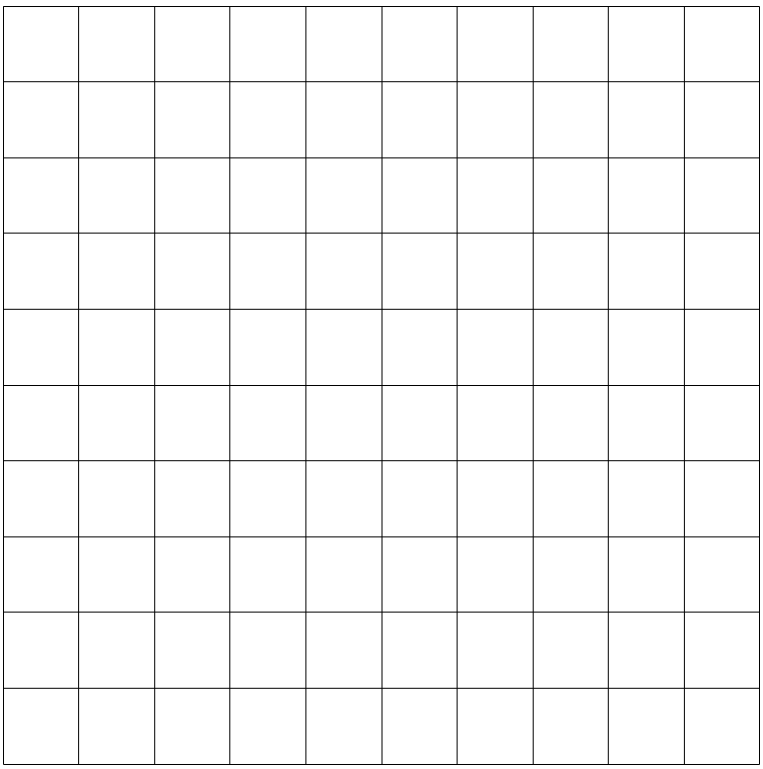
..... [1]

6 The month of July has 31 days.

Calculate the number of seconds in the month of July.

..... seconds [2]

7 A cuboid has length 3 cm, width 2 cm and height 1 cm. On the 1 cm^2 grid, draw a net of the cuboid.



[3]

8 **(a)** Write down the reciprocal of 40.

..... [1]

(b) Calculate $\sqrt[3]{40}$.
Give your answer correct to 4 decimal places.

..... [2]

(c) Write the number 40 in standard form.

..... [1]

9 **(a)** Write down the gradient of the line $y = 2x - 3$.

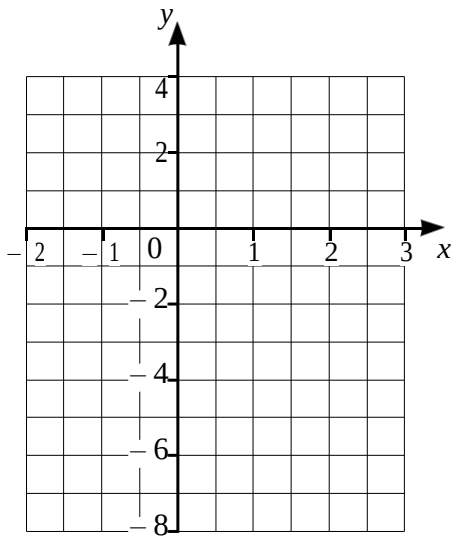
..... [1]

(b) Complete the table of values for $y = 2x - 3$.

x	-2	0	3
y			

[2]

(c) On the grid, draw the graph of $y = 2x - 3$ for $-2 \leq x \leq 3$.



[1]

10 Point A has coordinates (6, 4) and point B has coordinates (2, 7).

Write $\overrightarrow{AB}$ as a column vector.

$\overrightarrow{AB} = \begin{pmatrix} \quad \\ \quad \end{pmatrix}$ [1]

11 The number of people swimming in a pool is recorded each day for 12 days.

24	28	13	38	15	26
45	21	48	36	18	38

(a) Complete the stem-and-leaf diagram.

1	
2	
3	
4	

Key: 1 \| 3 represents 13 swimmers

[2]

(b) Find the median number of swimmers.

..... [1]

12 A bag contains red marbles, green marbles and blue marbles only. The ratio of the number of marbles of each colour is

red : green : blue = 12 : 5 : 2.

There are 112 more red marbles than green marbles.

Work out the number of blue marbles.

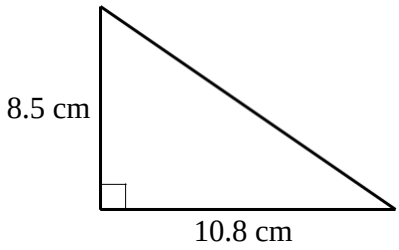
..... [2]

13 Without using a calculator, work out $\frac{15}{28} \div \frac{4}{7}$.

You must show all your working and give your answer as a fraction in its simplest form.

..... [3]

14



NOT TO SCALE

The diagram shows a right-angled triangle.

(a) Calculate the area.

..... cm^2 [2]

(b) Calculate the perimeter.

..... cm [3]

15 Riya invests $30 000 at a rate of 2.5% per year compound interest.

Calculate the value of her investment at the end of 7 years. Give your answer correct to the nearest dollar.

$ ..... [3]

16 **(a)** Simplify.

$5 \times x^0$

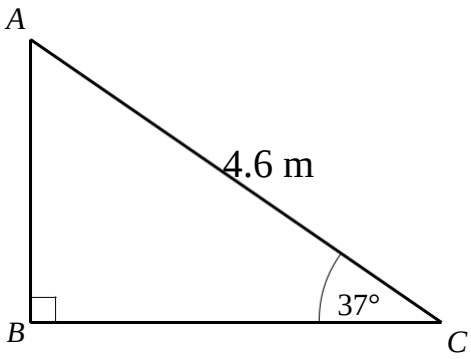
..... [1]

(b) $9^{12} \div 9^w = 9^4$

Find the value of w.

w = ... [1]

17



NOT TO SCALE

The diagram shows a right-angled triangle *ABC*.

Calculate *AB*.

AB = ... m [2]

18 **(a)** Factorise completely.

$3x^2 - 12xy$

..... [2]

(b) Expand and simplify.

$(m - 3)(m + 2)$

..... [2]

19 A car travels at a constant speed of 45 kilometres per hour for 5 minutes.
Each wheel of the car has radius 25 centimetres.

Calculate the number of complete revolutions that a wheel makes during the 5 minutes.

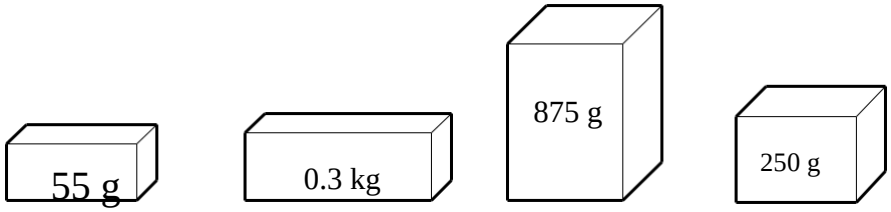
..... [5]

20 Navja works in a post office.

The table shows the costs of sending parcels by post.
The cost depends on the mass, m grams, of the parcel.

Type of parcel	Mass (g)	Cost ($)
Small	$0 < m \leq 60$	0.76
Medium	$60 < m \leq 100$	0.95
Large	$100 < m \leq 250$	2.20
Extra large	$250 < m \leq 1000$	5.60

(c) Sai sends each of these four parcels by post.



He pays with a $20 note.

Work out how much change he receives.

$ ..... [4]

On 1 April, the cost of sending any parcel increases by 5%.

Show that the increase in the cost of sending an **Extra large** parcel is $0.28 .

[1]

(c) Avani says

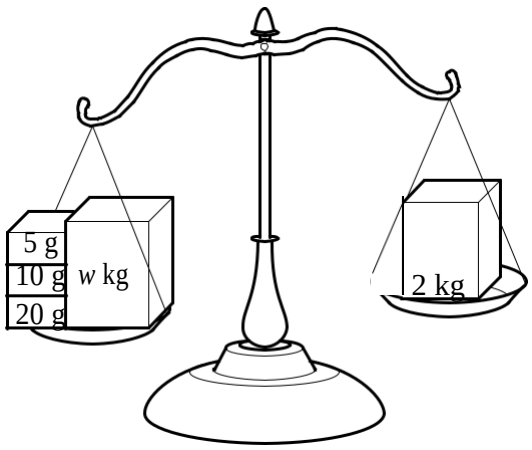
"As the cost of an **Extra large** parcel increases by $0.28 then the cost of a **Large** parcel will also increase by $0.28 to $2.48."

Explain why Avani is incorrect.

.....

..... [1]

(i) Navja weighs a parcel with mass w kg on her scales. She uses the masses shown to balance the scales.



Work out the value of w.

w = ... [3]

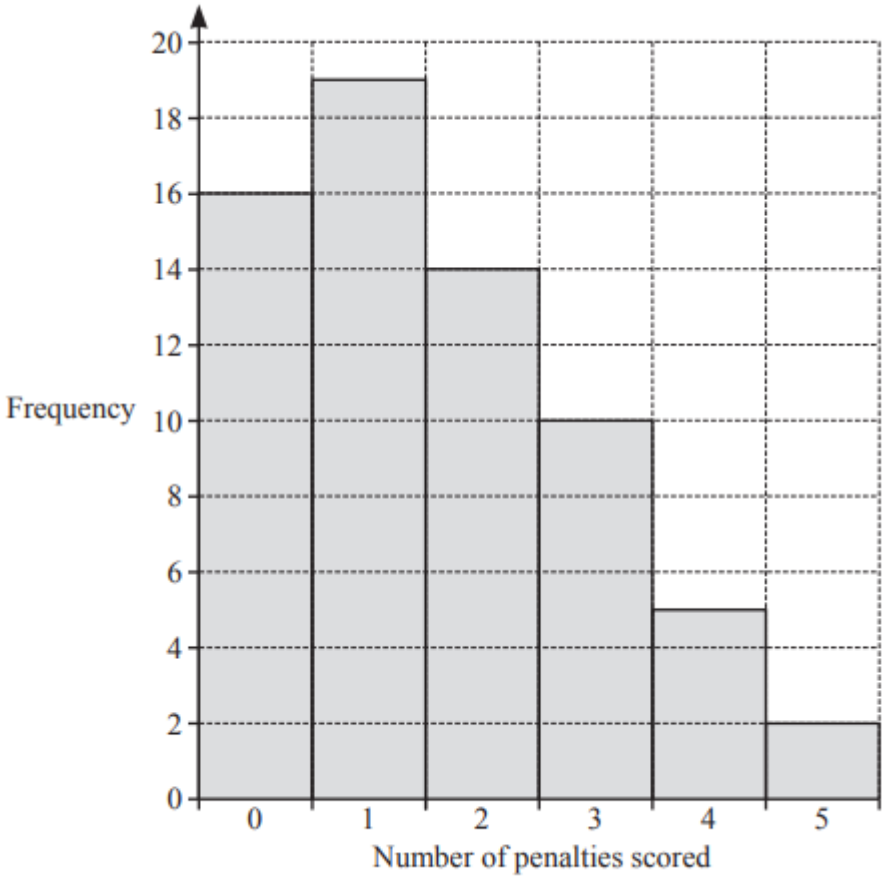
(ii) Sometimes Navja uses an electronic weighing machine.
The machine gives the mass, p kg, of a parcel as 12.4 kg, correct to the nearest 100 g.

Complete this statement about the value of p.

..... ≤ p < ..... [2]

21

(a) 66 football players each take five penalties.
The number of penalties that each player scores is recorded.
The results are shown in the bar chart.



Write down the mode.

..... [1]

b. Write down the range.

..... [1]

c. Calculate the mean.

..... [3]

(b) The attendance at a football match is 11 678.

(i) Write 11 678 in words.

..... [1]

(ii) Write 11 678 correct to the nearest 100.

..... [1]

(c) In a football stadium there are 15 000 seats.
10 650 of these seats are occupied.

Find the percentage of the 15 000 seats that are occupied.

..... % [1]

End of Paper