



MINISTRY OF EDUCATION, SINGAPORE
in collaboration with
CAMBRIDGE ASSESSMENT INTERNATIONAL EDUCATION
General Certificate of Education Normal (Technical) Level

CANDIDATE
NAME

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CENTRE
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MATHEMATICS (SYLLABUS T)

4046/02

Paper 2

For examination from 2023

SPECIMEN PAPER

1 hour 30 minutes

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, index number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE ON ANY BARCODES.

Answer **all** the questions.
The number of marks is given in brackets [] at the end of each question or part question.

If working is needed for any question it must be shown in the space below the question.
Omission of essential working will result in loss of marks.
The total of the marks for this paper is 50.

The use of an approved scientific calculator is expected, where appropriate.
If the degree of accuracy is not specified in the question and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π , use either your calculator value or 3.142.

This document consists of **10** printed pages.



Singapore Examinations and Assessment Board



Cambridge Assessment
International Education



* 0 1 2 3 4 5 6 7 8 9 *

Mathematical Formulae

Compound interest

$$\text{Total amount} = P \left(1 + \frac{r}{100} \right)^n$$

Quadratic equation $ax^2 + bx + c = 0$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

- 1 $\frac{5}{8}$ 62% 0.63 $\left(\frac{71}{90}\right)^2$

Write these numbers in order, starting with the smallest.

Answer [2]
 smallest greatest

- 2 Find a fraction between $\frac{1}{2}$ and $\frac{5}{8}$.

Answer [2]

- 3 A letter is chosen at random from the word P E N I N S U L A.

Find the probability that the letter is

- (a) one of the vowels A, E, I, O or U,

Answer [1]

- (b) made from straight lines only.

Answer [1]

- 4 Work out

- (a) $7 - 2(5 + 3)$,

Answer [1]

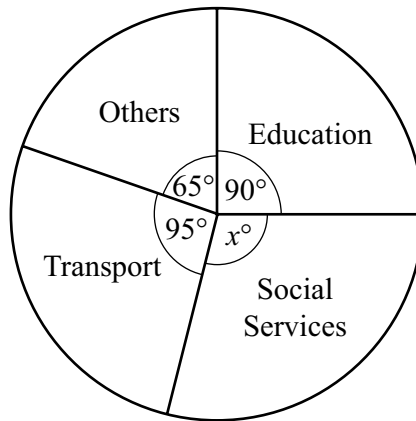
- (b) $\frac{\frac{1}{2} + \frac{1}{4}}{\frac{1}{2} - \frac{1}{4}}$.

Answer [2]

- 5 Rearrange the formula $d = 2h^2 - 8$ to make h the subject.

Answer $h = \dots\dots\dots$ [3]

- 6 A country spent \$720 million in a year.
The pie chart shows where the money was spent.



- (a) Find x .

Answer $x = \dots\dots\dots$ [2]

- (b) Find the amount spent on Education.

Answer \$..... million [2]

7 Write in standard form

(a) 325 000 000,

Answer [1]

(b) 0.000 76,

Answer [1]

(c) $(3 \times 10^8) \times 3600$.

Answer [2]

8

$$C = 3n + 4(n + 1)$$

(a) Write the formula in its simplest form.

Answer [2]

(b) Given that $n = 10$ find the value of C .

Answer $C =$ [2]

- 9 (a) Work out 6% of \$48 000.

Answer \$ [1]

- (b) Find 1754 as a percentage of 4385.

Answer% [1]

- (c) Calculate the percentage increase from 1200 to 1404.

Answer% [2]

- 10 Write the ratio \$6.25 : \$2.50 in its simplest form.

Answer:..... [2]

- 11 4 3 2 10 9 5 8 6 7

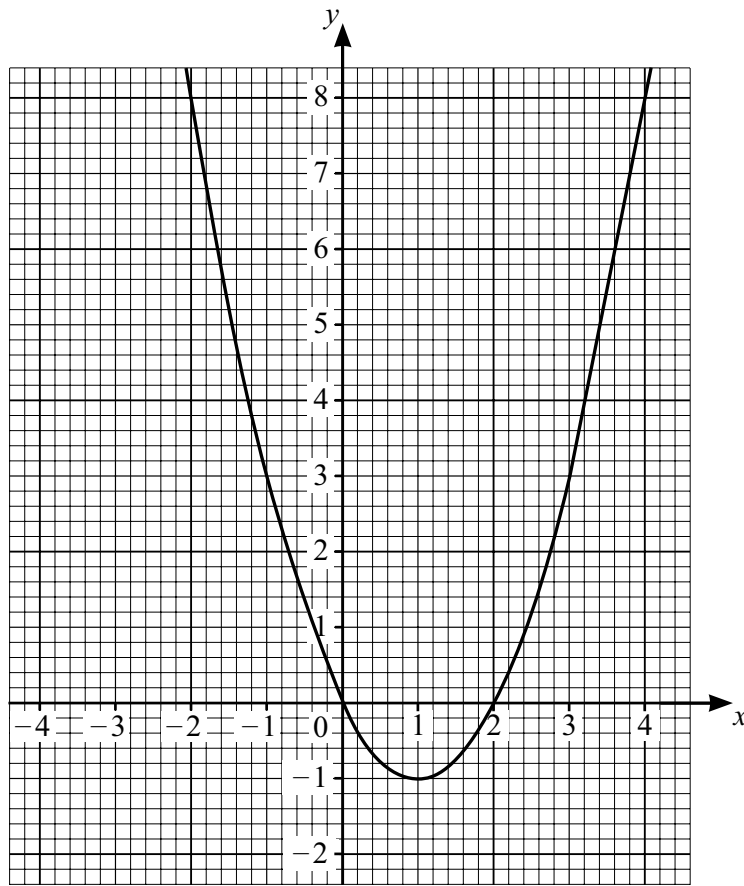
- (a) Find the mean of these numbers.

Answer [1]

- (b) Find the range of these numbers.

Answer [1]

- 12 The diagram shows the graph of $y = x^2 - 2x$.



- (a) Write down the coordinates of the minimum point.

Answer (.....,) [1]

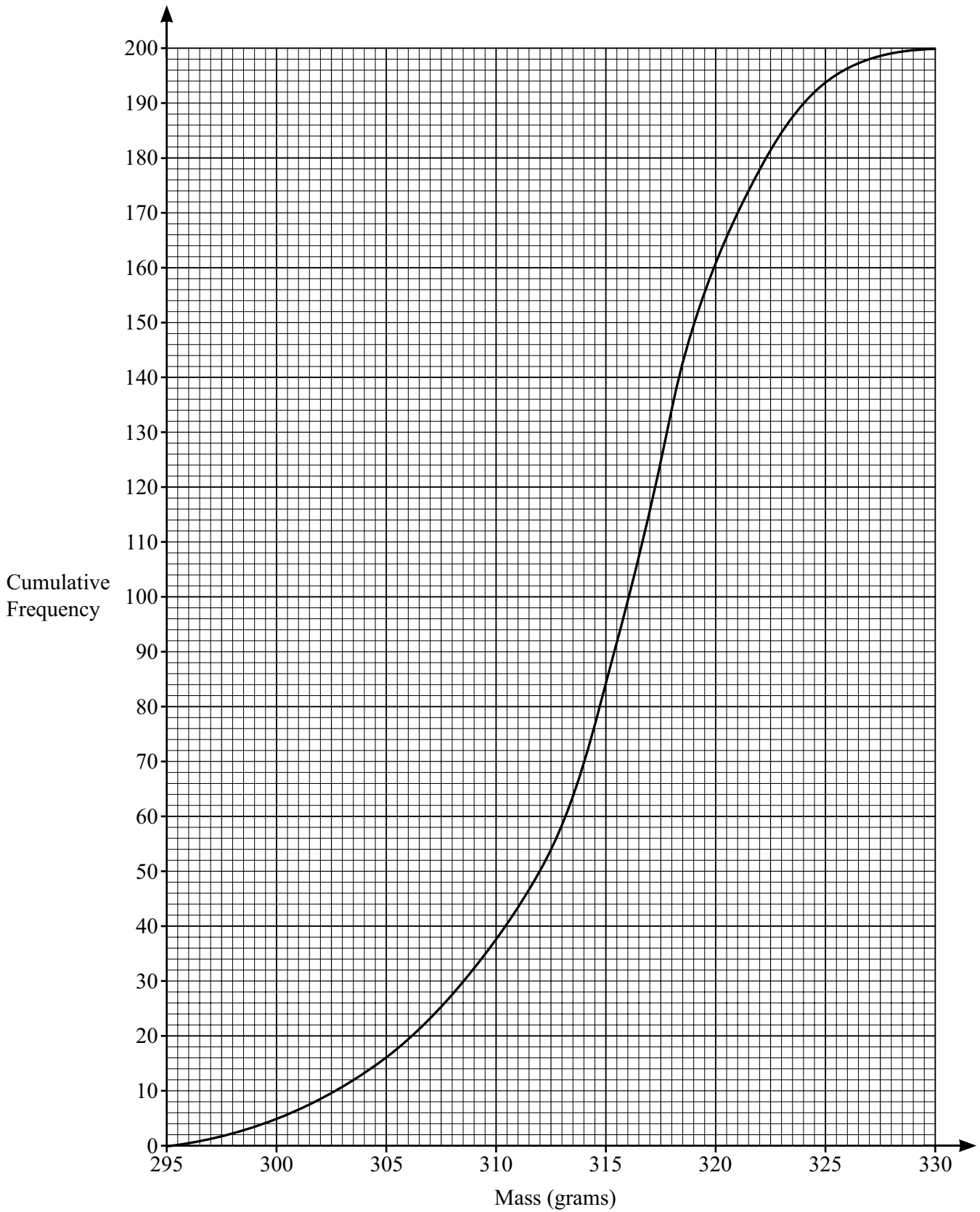
- (b) On the grid, draw the graph of $y = 3$.

[1]

- (c) Write down the coordinates of the points of intersection of the graphs of $y = 3$ and $y = x^2 - 2x$.

Answer (.....,) and (.....,) [2]

- 13 A company carried out quality control checks on the mass of washing powder in its 300-gram boxes. A batch of 200 boxes is tested. The results for this batch are shown on the cumulative frequency graph.



- (a) The company allows 5% of the test batch to be below 300 grams.
Give a reason why the batch represented by the graph is acceptable.

Answer
..... [2]

- (b) Find the median mass of the washing powder in the boxes.

Answer grams [1]

- (c) Work out the inter-quartile range.

Answer grams [2]

- (d) What is the probability that a box chosen at random had a mass of more than 325 grams?

Answer [2]

14 Lee decides to buy a new computer costing \$ 2000.

(a) A shop in Raffles Centre offers him a finance package.

Deposit \$250 and 36 monthly payments of \$60.

What is the total cost of this finance package?

Answer \$ [3]

(b) Lee decides to borrow the \$2000 from his bank at the following cost.

5% per annum compound interest over 3 years

(i) Find the total cost of the bank loan and interest.

Answer \$ [2]

(ii) It is cheaper for Lee to use the bank loan than the shop finance.
How much cheaper?

Answer \$ [2]
