Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

MATHEMATICS **0580/32**

Paper 3 (Core) **October/November 2022**

2 hours

You must answer on the question paper.

You will need: Geometrical instruments

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 use a calculator where appropriate.
- You may use tracing paper.
- You must show all necessary working clearly.
- Give non-exact numerical answers correct to 3 significant figures, or 1 decimal place for angles in degrees, unless a different level of accuracy is specified in the question.
- For π, use either your calculator value or 3.142.

INFORMATION

- The total mark for this paper is 104.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **20** pages. Any blank pages are indicated.

© UCLES 2022

1 **(a)** 2 18 27 29 39 49 80 92

View solution

From this list of numbers, write down

(i) a multiple of 8,

..... [1]

(ii) a factor of 46,

View solution

..... [1]

(iii) a square number,

View solution

..... [1]

(iv) a cube number,

View solution

..... [1]

(v) a prime number.

View solution

..... [1]

(b) Write 0.003 857 correct to

View solution

(i) 3 decimal places,

..... [1]

(ii) 3 significant figures.

View solution

..... [1]

(c) Anna invests \$16 000 at a rate of 3.8% per year compound interest.

View solution

Calculate the value of her investment at the end of 5 years.

\$ ..... [2]

© UCLES 2022

(d) (i) Write 48 as the product of its prime factors.

View solution

..... [2]

(ii) Find the lowest common multiple (LCM) of 48 and 126.

View solution

..... [2]

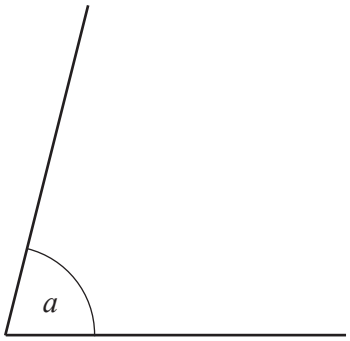
(e) The mass of a truck, m tonnes, is 28.5 tonnes, correct to 1 decimal place.

View solution

Complete this statement about the value of m.

..... $\leqslant m <$ ..... [2]

2 (a)



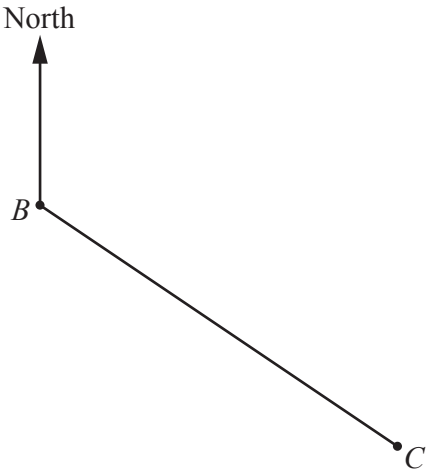
(i) Measure the size of angle a.

..... [1]

(ii) Write down the mathematical name of this type of angle.

..... [1]

(b) The scale drawing shows the positions of town B and town C.
The scale is 1 cm represents 8 km.



Scale: 1 cm to 8 km

(i) Work out the actual distance between town B and town C.

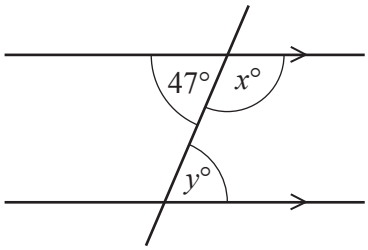
..... km [2]

(ii) Measure the bearing of town C from town B.

..... [1]

(c)

View solution



NOT TO SCALE

The diagram shows two parallel lines and a straight line crossing them.

Find the value of x and the value of y.

$x =$ .....

$y =$ ..... [2]

(d) A triangle has angles 119°, 31° and d°.

View solution

Explain why this triangle is scalene.
You must show your working.

.....

..... [2]

(e) Find the size of one interior angle of a regular 15-sided polygon.

View solution

..... [2]

(f) One of the angles in a parallelogram is 64°.

View solution

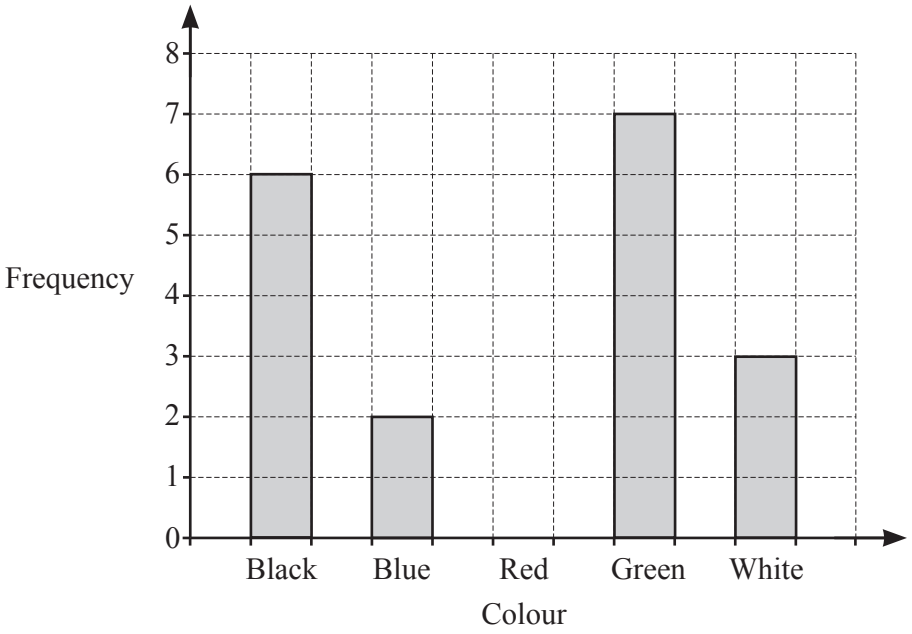
Find the other three angles in this parallelogram.

..... , ... , ... [3]

3 24 people own a car.

(a) Ranjit asks each of these 24 people the colour of their car.
The bar chart shows some of these results.

View solution



(i) Complete the bar chart by drawing the bar for the colour red.

[2]

(ii) Write down the mode.

View solution

..... [1]

(iii) How many more people have a green car than have a blue car?

View solution

..... [1]

(b) The table shows the size, in litres, of each of the 24 car engines.

View solution

Engine size (litres)	0.8	1.2	1.5	1.8	2.4
Frequency	7	4	5	6	2

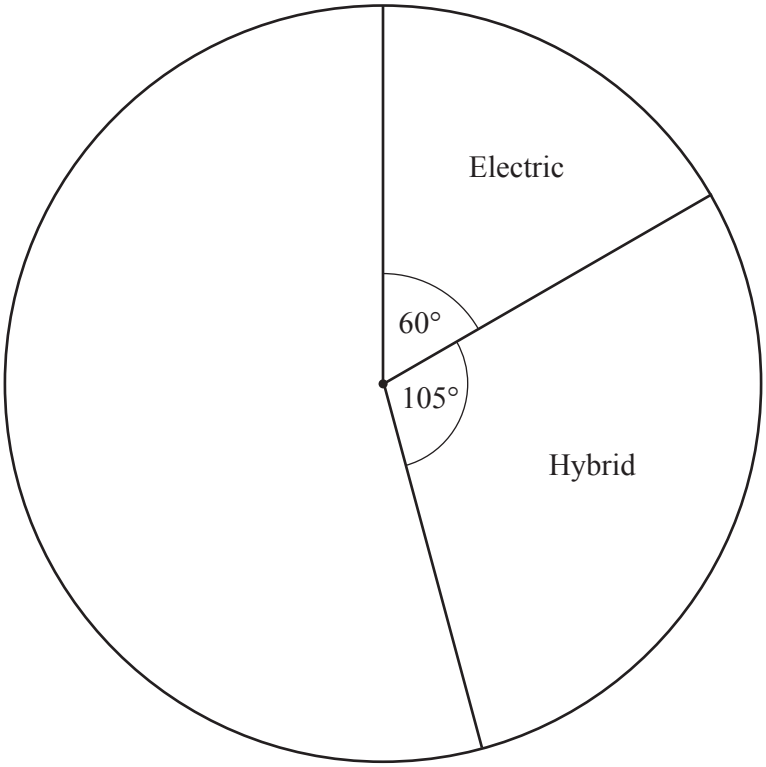
Calculate the mean.

..... litres [3]

© UCLES 2022

(c) Ranjit also asks each of the 24 people what type of car they have.
The pie chart shows some of these results.

View solution



(i) Work out the number of hybrid cars.

..... [2]

(ii) The rest of the cars are either petrol or diesel.
There are 8 petrol cars.

View solution

Complete the pie chart to show this information.

[2]

© UCLES 2022

4 Mr and Mrs Perez and their 3 children go on holiday to Tokyo.

View solution

(a) The holiday costs $3800 for an adult and $2400 for a child.
8% tax is then added to the cost of the holiday.

Find the total cost of the holiday, including tax, for the Perez family.

$ ..... [4]

View solution

(b) The plane takes 11 hours 40 minutes to fly from Los Angeles to Tokyo.
The plane leaves on Wednesday at 10 35 local time.
The local time in Tokyo is 17 hours ahead of the local time in Los Angeles.

(i) Find the day and local time in Tokyo when the plane arrives.

Day ..... Time ..... [3]

View solution

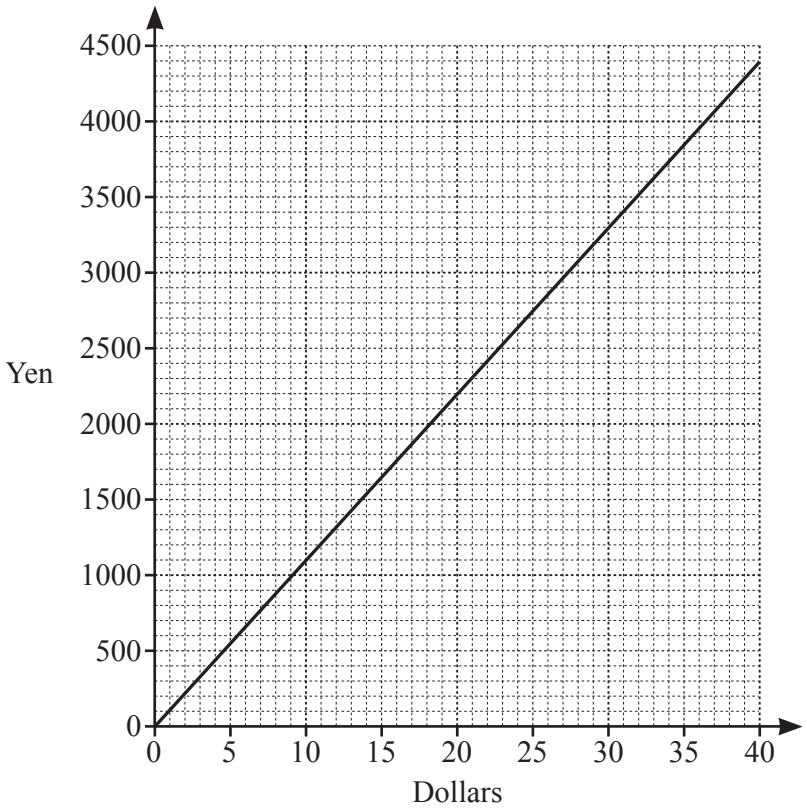
(ii) The distance the plane flies is 8820 km.

Calculate the average speed of the plane.

..... km/h [2]

(c) The diagram shows a conversion graph between dollars and Japanese yen.

View solution



A watch costs $100.

Find the cost of this watch in yen.

..... yen [2]

(d) The family go to a restaurant.
The total cost of the food and drinks is $154.
The ratio cost of food : cost of drinks = 21 : 4.

View solution

Work out the cost of drinks.

$ ..... [2]

© UCLES 2022

5 **(a)** Apples cost \$$a$ per kilogram and bananas cost \$$b$ per kilogram.
Lee buys 6 kg of apples and 8 kg of bananas.

View solution

Write down an expression, in terms of a and b, for the total cost, in dollars, of the apples and the bananas.

\$ ..... [2]

(b) Cara is one year older than twice Asher's age.
Brice is 22 years older than Asher.
The total of their three ages is 167.

View solution

Find the age of each person.

Asher ..... years

Brice ..... years

Cara ..... years [4]

© UCLES 2022

(c) Solve the simultaneous equations.
You must show all your working.

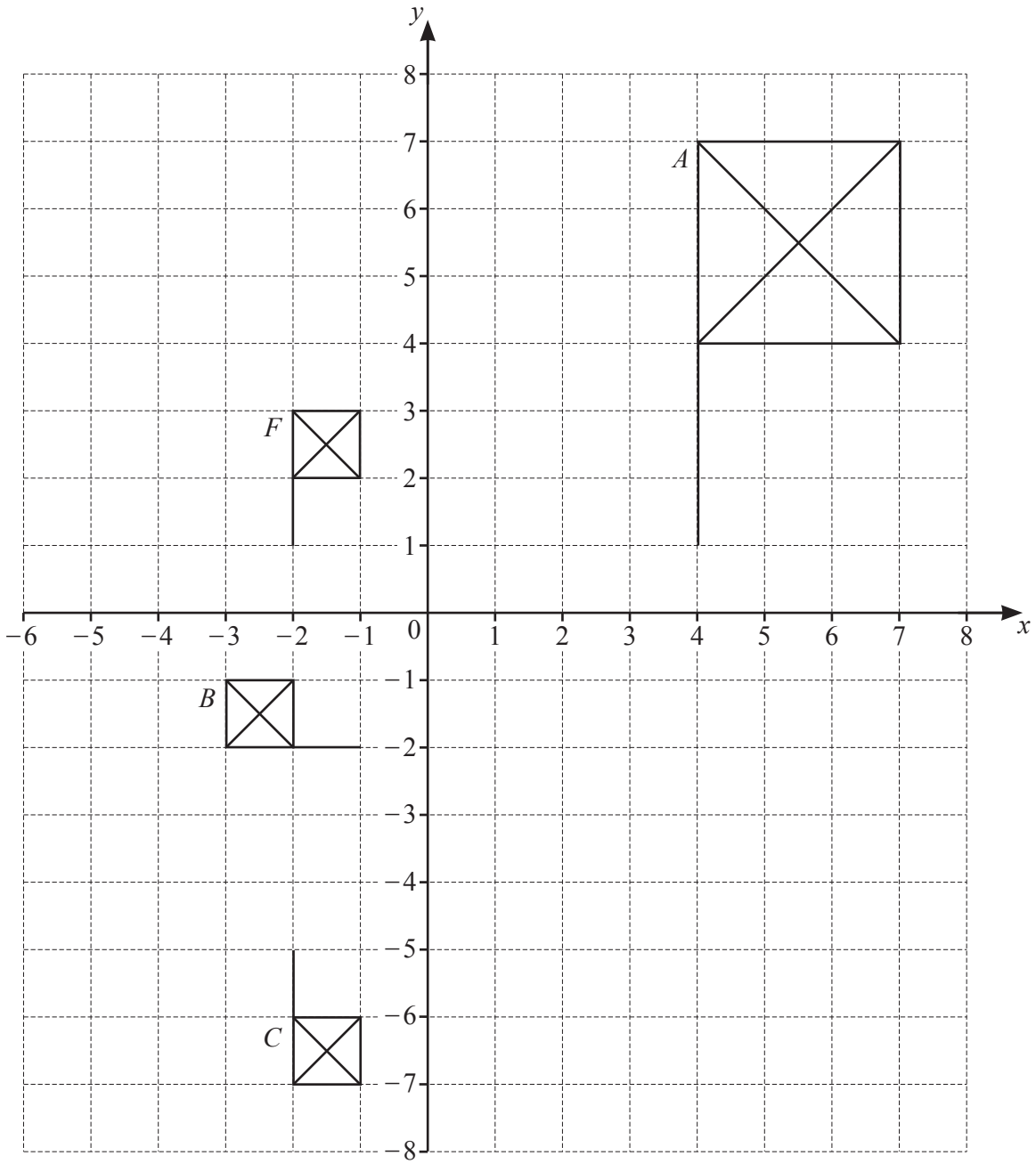
View solution

$$3x + 2y = 21$$
$$2x - 5y = 33$$

$x =$ .....

$y =$ ..... [4]

6 The diagram shows four flags, F, A, B and C, on a grid.



(a) Describe fully the **single** transformation that maps

View solution

(i) flag F onto flag A,

.....

..... [3]

(ii) flag F onto flag B,

View solution

.....

..... [3]

(iii) flag F onto flag C.

View solution

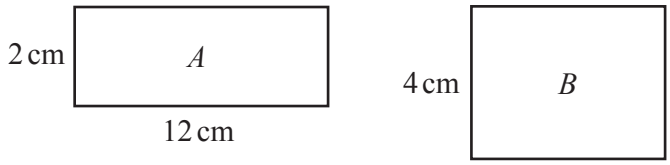
.....

..... [2]

(b) On the grid, draw the image of flag F after a translation by the vector $\begin{pmatrix} 3 \\ -4 \end{pmatrix}$. [2]

View solution

7 **(a)**



NOT TO SCALE

The area of rectangle A is equal to the area of rectangle B.

Work out which rectangle has the greater perimeter and by how much.

Rectangle ..... has the greater perimeter by ..... cm [4]

(b) A circle has an area of $150\,cm^2$.

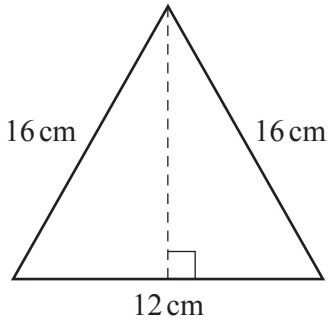
Calculate the radius of this circle.

..... cm [3]

© UCLES 2022

(c)

View solution



NOT TO SCALE

An isosceles triangle has base 12 cm and sides 16 cm.

Find the area of this triangle.

..... cm^2 [5]

© UCLES 2022

8 **(a)** **(i)** Complete the table of values for $y = x^2 + 2x - 4$.

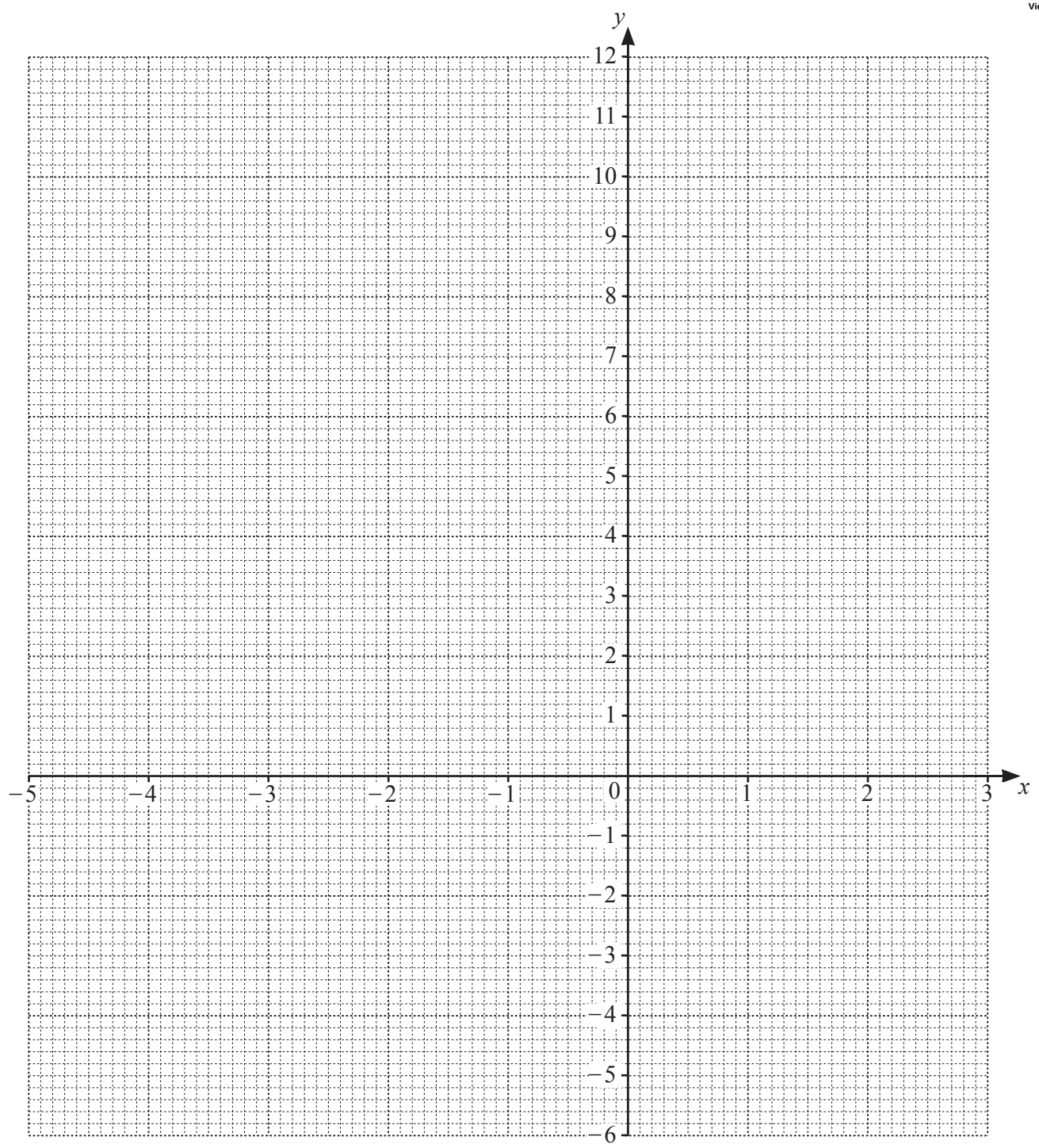
View solution

x	−5	−4	−3	−2	−1	0	1	2	3
y	11		−1				−1		11

[3]

(ii) On the grid, draw the graph of $y = x^2 + 2x - 4$ for $-5 \leqslant x \leqslant 3$.

View solution



[4]

© UCLES 2022

(iii) Write down the equation of the line of symmetry of the graph.

View solution

..... [1]

(iv) Use your graph to solve the equation $x^2 + 2x - 4 = 0$.

View solution

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

(b) A line L has an equation of $y = 5x + 7$.

View solution

Write down the equation of the line parallel to L that passes through $(0, -2)$.

..... [2]

© UCLES 2022

9 **(a)** Write down the reciprocal of $\frac{1}{3}$.

View solution

..... [1]

(b) Write down the value of 3^0.

View solution

..... [1]

(c) Find a fraction between $\frac{3}{25}$ and $\frac{4}{25}$.

View solution

..... [1]

(d) Find the difference in temperature between $-5\,°C$ and $9\,°C$.

View solution

..... °C [1]

(e) Write in standard form.

View solution

(i) 5 600 000

..... [1]

(ii) 0.000 072

View solution

..... [1]

(f) Calculate $(5.2 \times 10^6) \times (3.8 \times 10^{-2})$.
Give your answer in standard form.

View solution

..... [1]

© UCLES 2022

BLANK PAGE

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.

© UCLES 2022