Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

MATHEMATICS **0580/32**

Paper 3 (Core) **October/November 2019**

2 hours

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator
Tracing paper (optional)
Geometrical instruments

READ THESE INSTRUCTIONS FIRST

Write your centre number, candidate 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 IN ANY BARCODES.

Answer **all** questions.
If working is needed for any question it must be shown below that question.
Electronic calculators should be used.
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.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.
The total of the marks for this paper is 104.

This document consists of **16** printed pages.

© UCLES 2019

1 Nadira owns a clothes shop.

View solution

(a) The pictogram shows the number of skirts that were sold each day in one week.

Day	Number of skirts
Monday	◯ ◖
Tuesday	◯
Wednesday	◯ ◯ ◖
Thursday	◯ ◯ ◖
Friday	◯ ◯ ◯ ◯
Saturday	◯ ◯ ◯ ◖

Key: ◯ = 10 skirts

(i) On which day were most skirts sold?

..... [1]

(ii) How many skirts were sold on Wednesday?

View solution

..... [1]

(iii) Work out how many more skirts were sold on Friday than on Thursday.

View solution

..... [1]

(b) The shop is open for 6 days each week.
On each day, the shop is open from 09 30 until 13 00 and from 14 15 until 20 30.

View solution

Work out the total number of hours the shop is open in one week.

..... hours [2]

© UCLES 2019

(c) Nadira pays 6 people to work in the shop.

View solution

In one week
- 4 people each work for 38 hours
- 2 people each work for 25 hours.

They are each paid $11.40 for each hour they work.

Calculate the total amount Nadira pays these 6 people in one week.

$ ..... [2]

(d) Nadira has some T-shirts that are either white or blue or green.
The numbers of T-shirts are in the ratio white : blue : green = 5 : 4 : 1.
48 of the T-shirts are blue.

View solution

Work out the total number of T-shirts.

..... [3]

(e) Nadira buys a pack of 40 dresses and pays $500.
She sells 35 of these dresses for $22 each.
She sells the remaining 5 dresses for $14.50 each.

View solution

Calculate the percentage profit she makes when she sells all 40 dresses.

..... % [4]

© UCLES 2019

2 Henry decorates a room.

(a) Complete Henry's shopping bill.

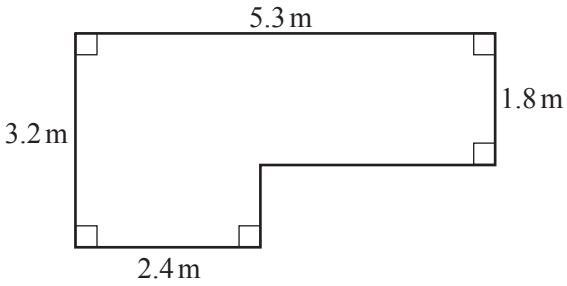
View solution

Item	Cost ($)
3 tins of paint at $15.95 each	
2 brushes at $7.50 each	
1 roll of tape at $2.90	2.90
Total	

[2]

(b)

View solution



NOT TO SCALE

The diagram shows the floor of the room.

(i) Calculate the area of the floor.

..... m^2 [2]

(ii) Henry buys varnish for the floor of the room.
500 ml of varnish covers 8 m^2 of floor.

View solution

Calculate the amount of varnish Henry needs.

..... ml [2]

© UCLES 2019

(c) This scale drawing shows the window in the room.
The scale is 1 centimetre represents 40 centimetres.

View solution



Scale: 1 cm to 40 cm

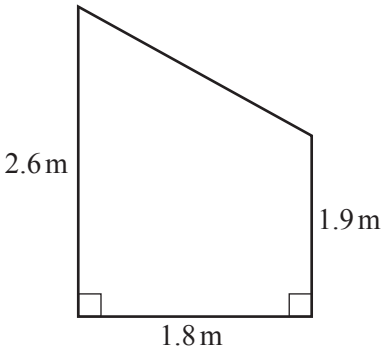
Work out the actual length and height of the window.

Length = ... cm

Height = ... cm [2]

(d)

View solution



NOT TO SCALE

The diagram shows one wall of the room.

Calculate the area of the wall.

..... m^2 [2]

(e) Henry buys a circular mirror for the room.
The diameter of the mirror is 80 cm.

View solution

Calculate the circumference of the mirror.

..... cm [2]

© UCLES 2019

3 **(a)** Write down

(i) all the factors of 18,

View solution

..... [2]

(ii) a square number between 30 and 50,

View solution

..... [1]

(iii) a prime number between 90 and 100.

View solution

..... [1]

(b) Put **one** pair of brackets into each calculation to make it correct.

View solution

(i) $24 \div 6 + 2 \times 3 = 9$ [1]

(ii) $24 \div 6 + 2 \times 3 = 2$ [1]

(c) Calculate.

View solution

$$\frac{4.85 \times 6.14}{8.91 + 3.89}$$

Give your answer correct to 2 decimal places.

..... [2]

© UCLES 2019

(d) (i) Find the highest common factor (HCF) of 36 and 90.

View solution

..... [2]

(ii) Find the lowest common multiple (LCM) of 36 and 90.

View solution

..... [2]

(e) (i) Write 4.2×10^{-3} as an ordinary number.

View solution

..... [1]

(ii) Calculate $(8.1 \times 10^5) + (7.9 \times 10^4)$.
Give your answer in standard form.

View solution

..... [2]

4 **(a)** 50 students each record the number of glasses of water they drink in one day.
The results for 10 of the students are shown below.

View solution

2 5 1 3 2 1 0 0 1 1

(i) The results for the remaining 40 students are recorded in the table.

Complete the table to show the results for all 50 students.

Number of glasses of water	Tally	Frequency
0	𝍸 |	
1	||	
2	𝍸 |||	
3	𝍸 𝍸 |	
4	𝍸 |||	
5	𝍸	
	Total	50

[2]

(ii) Write down the range.

View solution

..... [1]

(iii) Find the median.

View solution

..... [2]

(iv) Find the percentage of the 50 students who drink 4 glasses of water.

View solution

..... % [1]

(v) One of the 50 students is chosen at random.

View solution

Find the probability that this student drinks fewer than 2 glasses of water in one day.
Give your answer as a fraction in its lowest terms.

..... [2]

© UCLES 2019

(b) Musa has a glass that holds 250 ml of water.
He drinks 5 of these glasses of water.
He fills his glass from a 2-litre bottle of water.

Work out how much water is left in the bottle.
Give your answer in millilitres.

View solution

..... ml [2]

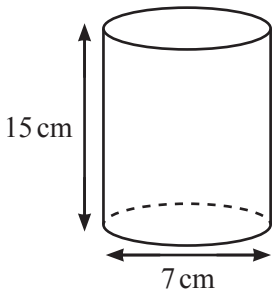
(c) The amount of water, w litres, in a jug is 1.5 litres, correct to the nearest 0.1 litre.

Complete this statement about the value of w.

View solution

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

(d)



NOT TO
SCALE

View solution

Another glass is in the shape of a cylinder.
The cylinder has height 15 cm and diameter 7 cm.

Calculate the volume of the glass.

..... cm^3 [3]

5 **(a)** In triangle ABC, $AC = 7$ cm and $BC = 5$ cm.

View solution

(i) **Using a ruler and compasses only**, construct triangle ABC.
AB has been drawn for you.



[2]

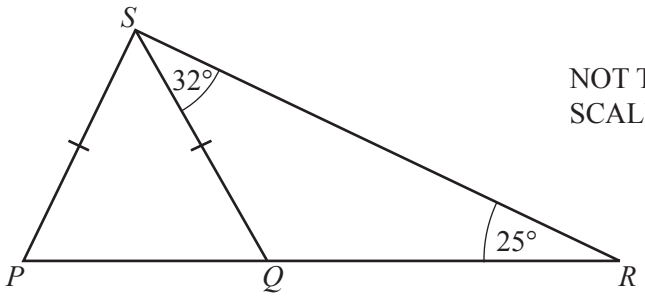
(ii) Measure angle ABC.

View solution

..... [1]

(b)

View solution



The diagram shows triangle PRS and a straight line QS.
Q is a point on PR.
Angle $QRS = 25°$, angle $RSQ = 32°$ and $PS = QS$.

(i) Find angle PQS.

Angle PQS = ... [2]

(ii) Find angle PSR.

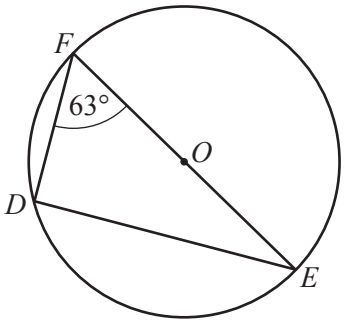
View solution

Angle PSR = ... [2]

© UCLES 2019

(c)

View solution



NOT TO SCALE

The diagram shows a circle, centre O, with diameter EF.
Angle $DFE = 63°$.

(i) Find angle DEF.

Angle DEF = ... [2]

View solution

(ii) $EF = 12\,\text{cm}$

Calculate DF.

DF = ... cm [2]

6 **(a)** Complete the table of values for $y = x^2 - 5x + 3$.

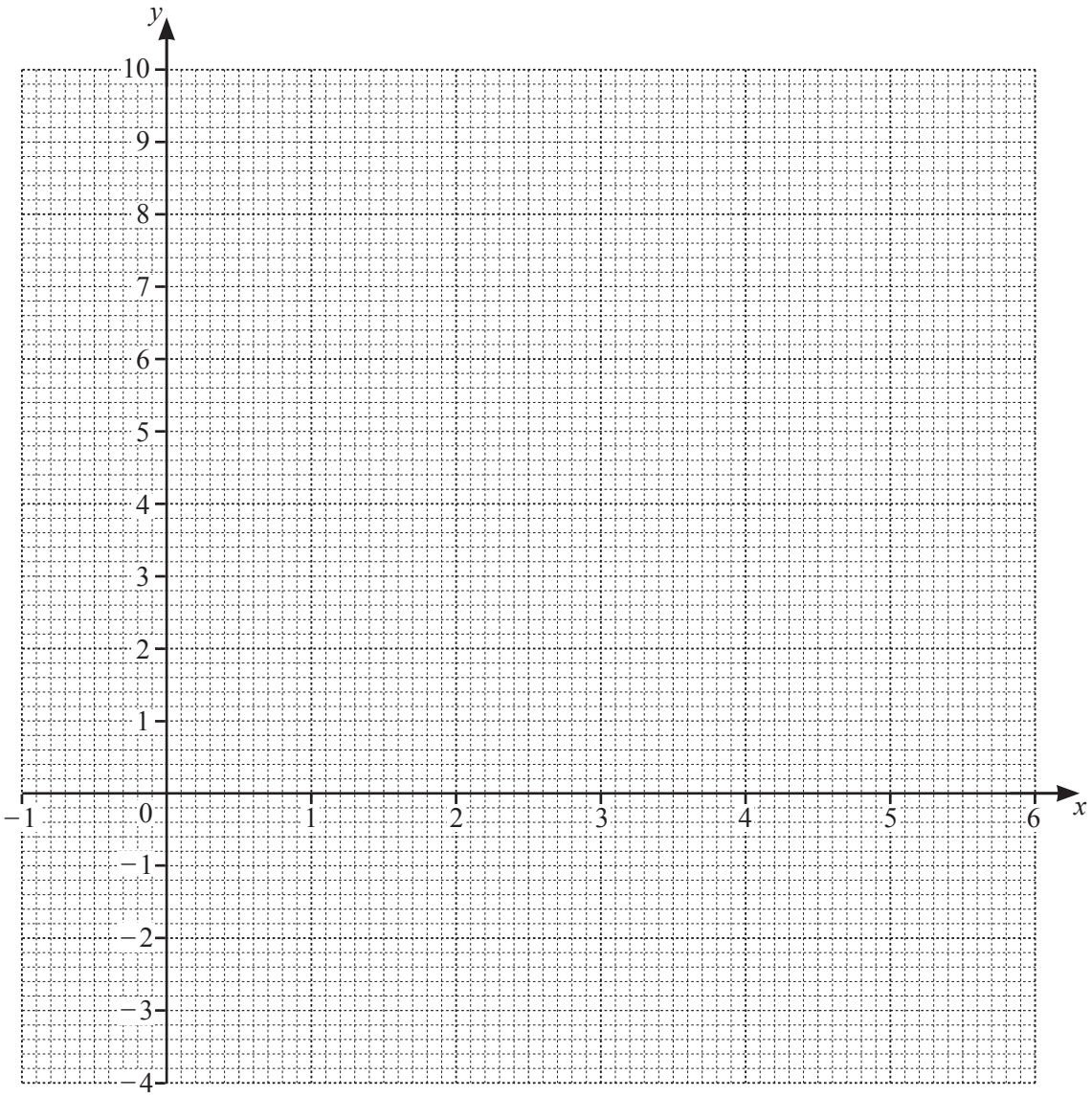
View solution

x	−1	0	1	2	3	4	5	6
y			−1	−3	−3	−1	3	

[2]

(b) On the grid, draw the graph of $y = x^2 - 5x + 3$ for $-1 \leqslant x \leqslant 6$.

View solution



[4]

(c) Use your graph to solve the equation $x^2 - 5x + 3 = 0$.

View solution

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

7 **(a)** Here are the first four terms of a sequence.

View solution

32 27 22 17

(i) Write down the next term.

..... [1]

(ii) Write down the rule for continuing the sequence.

View solution

..... [1]

(b) The nth term of another sequence is $n^2 + 2n$.

View solution

Find the first three terms of this sequence.

..... , ... , ... [2]

(c) Here are the first three patterns in a sequence.

View solution



Pattern 1 Pattern 2 Pattern 3

(i) Complete the table.

Pattern	1	2	3	4	5
Number of lines	6				

[2]

(ii) Find an expression, in terms of n, for the number of lines in Pattern n.

View solution

..... [2]

(iii) Jake says that he can make one of these patterns using exactly 105 lines.

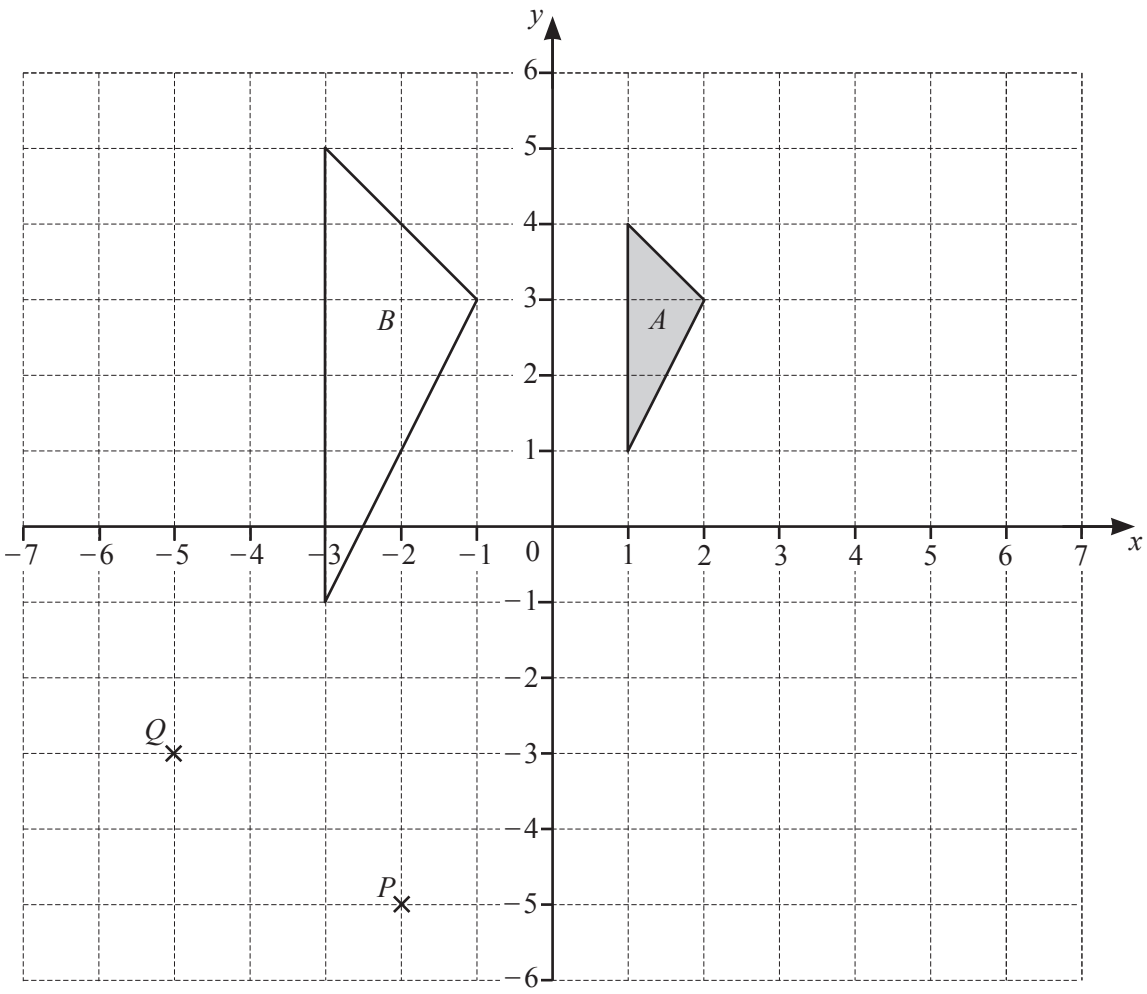
View solution

Explain, without doing any working, why he is wrong.

..... [1]

© UCLES 2019

8 The diagram shows two triangles, A and B, and two points P and Q.



(a) (i) Write down the co-ordinates of point P.

View solution

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

(ii) Write down the column vector $\overrightarrow{PQ}$.

View solution

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

(b) (i) Describe fully the **single** transformation that maps triangle *A* onto triangle *B*.

View solution

.....

..... [3]

(ii) On the grid, draw the image of triangle *A* after a translation by the vector $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$. [2]

(iii) On the grid, draw the image of triangle *A* after a rotation through 90° clockwise about (0, 0). [2]

Question 9 is printed on the next page.

© UCLES 2019

9 **(a)** $c = 5a - 2b$

View solution

(i) Find the value of c when $a = 8$ and $b = -3$.

..... [2]

View solution

(ii) Make a the subject of the formula $c = 5a - 2b$.

$a =$ ..... [2]

View solution

(b) Factorise $3x + 12$.

..... [1]

View solution

(c) Expand $x(2y + x)$.

..... [2]

View solution

(d) Cara has n pencils.
Alice has twice as many pencils as Cara.
Leon has three more pencils than **Alice**.
The three children have a total of 58 pencils.

Use this information to write down an equation and solve it to find the value of n.

$n =$ ..... [4]

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 the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.

© UCLES 2019