



THIRD SPACE
LEARNING

Mathematics

Paper 4

(Calculator)

Higher Tier

OCR GCSE

SET 5

Mathematics Paper 4 (Calculator) Higher Tier OCR GCSE

SET 5

Name

Total marks



Paper length: 1hr 30mins

Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name, centre number and candidate number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may be used.

Question	Mark
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Information

- The total mark for this paper is 100
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

This practice paper is based on the topics from the **advanced information for the November 2026 exam series.**

Please note, this practice paper is an example to help revision, these topics can be tested in other ways and other topics may be included in the actual papers

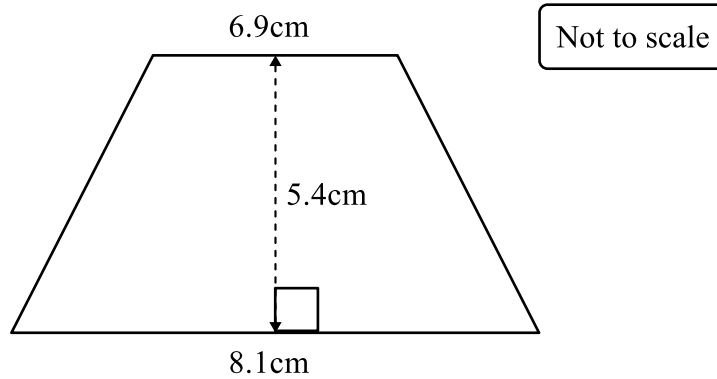
1 Calculate.

$$\frac{\sqrt[3]{18.3^3 - 16}}{6.32}$$

Write your answer correct to 4 significant figures.

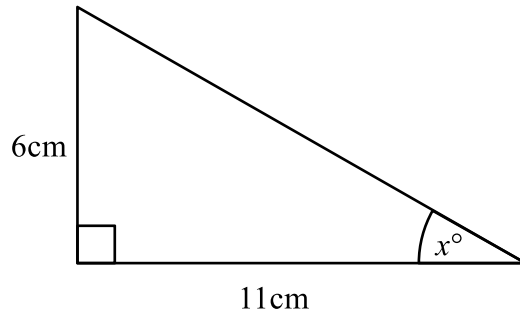
..... [3]

2 Calculate the area of this trapezium.



..... cm² [2]

3



Work out the value of x

Give your answer correct to 3 significant figures.

..... ° [2]

4 (a) Circle the reciprocal of 0.4

[1]

4 $\frac{1}{4}$ 2 2.5

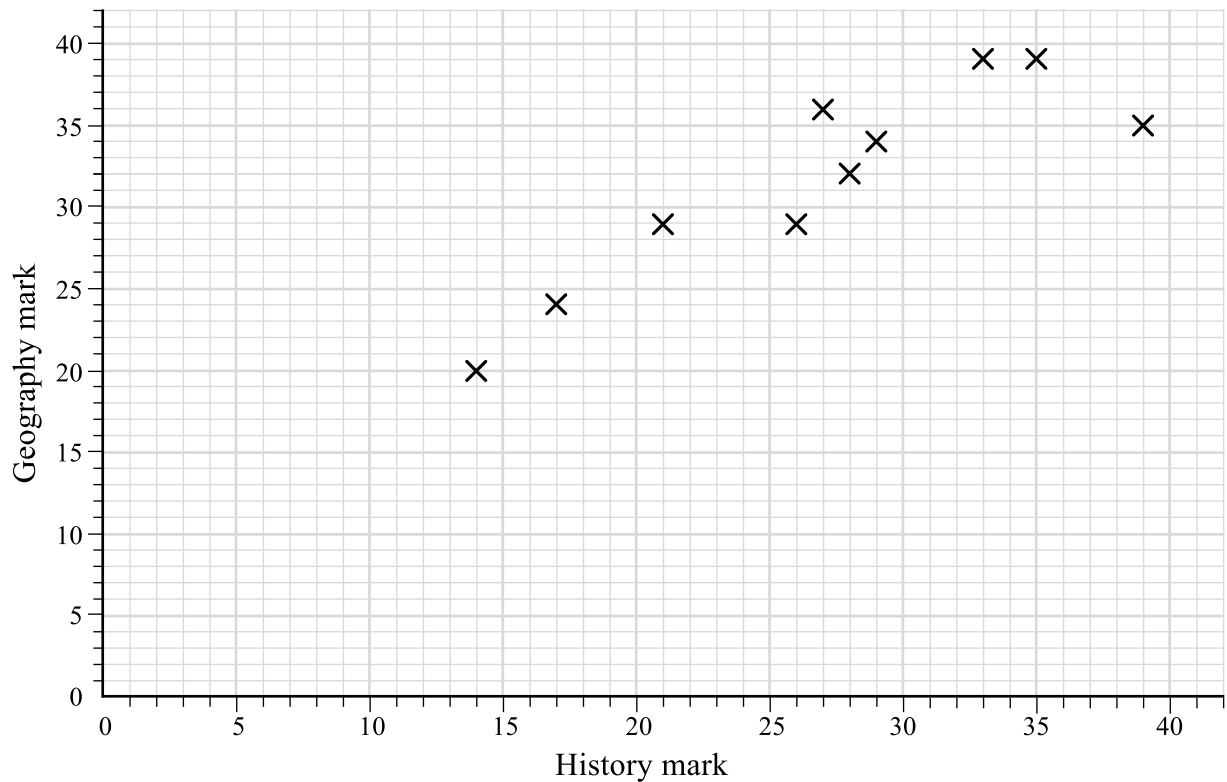
(b) $x = 5.3$ to 2 significant figures.

Complete the error interval for x

Answer $\leq x <$

[2]

5 The scatter diagram shows the history and geography marks of 10 students in their recent tests.



(a) The table has information for 2 more students.

Plot these on the scatter diagram.

[2]

History mark	10	30
Geography mark	15	30

(b) Describe the correlation shown in the graph.

(b) [1]

(c) Another student scored 25 in the history test.

Use the graph to estimate this student's score in the geography test.

(c) [2]

Question continued on the next page

(d) Both tests were out of 40. Which test do you think was easier? Explain why.

[2]

6 The bearing of A from B is 121° .
What is the bearing of B from A ?

----- $^\circ$ [2]

7 A bus leaves Bristol for London every 24 minutes.
A bus leaves Bristol for Cardiff every 40 minutes.
A bus for each leaves at 13:18.

Find the next time a bus leaves for London and Cardiff at the same time.

----- [4]

- 8 Frankie invests £7000 in a bank account.
Frankie gets 6% per annum compound interest.
After n years, Frankie has £9367.58
Work out the value of n .

----- [2]

- 9 The points A , B and C form a straight line ABC .

The coordinates of A are $(2, 3)$.
The coordinates of B are $(6, 9)$.
Given that $AB:BC = 2:5$, find the coordinates of C .

----- [4]

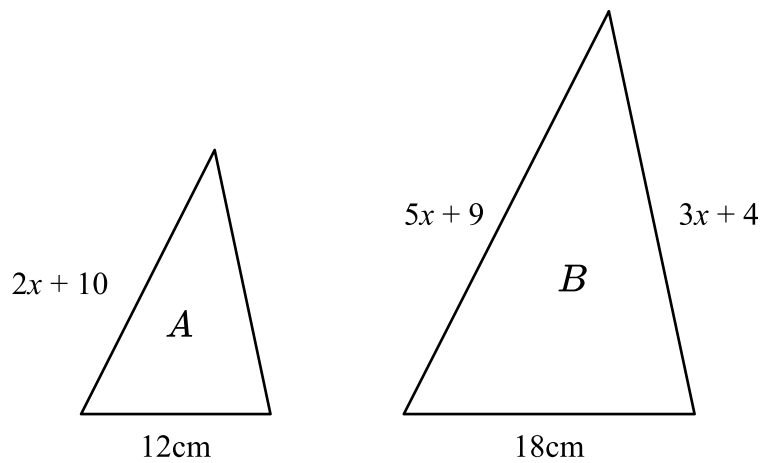
- 10 $1000^a \times 100000^b$ can be written in the form 10^k
Show that $k = 3a + 5b$

----- [2]

11 k is a whole number such that $\sqrt{k} = 13.7$ to 1 decimal place. What is the largest possible value of k ?

..... [2]

12 Triangles A and B are similar triangles.



Work out the perimeter of triangle B .

..... [5]

- 13** Amina has a pack of playing cards. However, some of the cards are missing.
Amina is going to pick a card at random.
The probability that she picks a card from each suit is shown in the table.

Suit	Heart	Club	Diamond	Spade
Probability	0.25	0.275		

- (a)** Given that Amina has 10 heart cards, work out how many cards Amina has in total.

----- [2]

- (b)** Amina has all 13 diamond cards.
Complete the table.

[2]

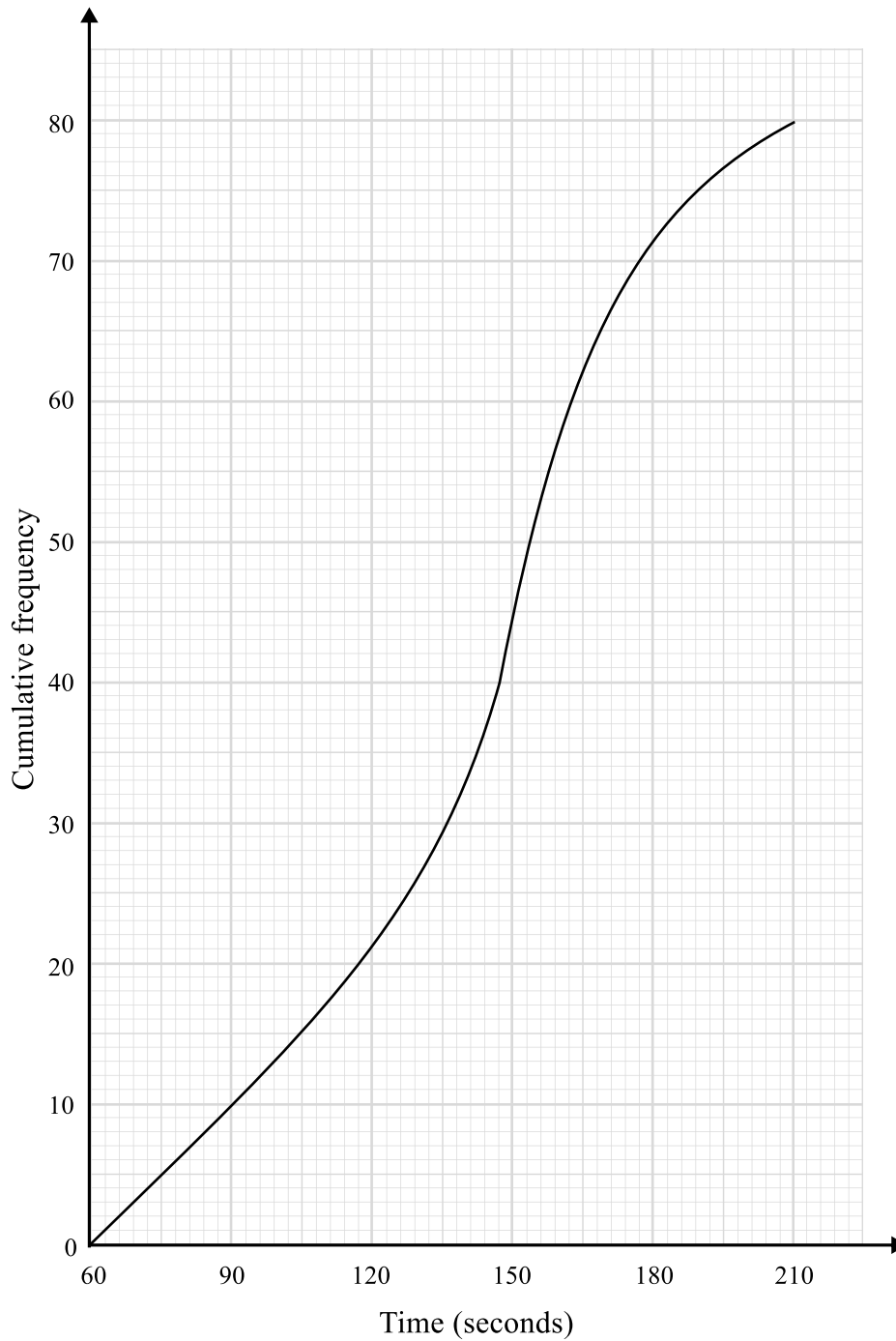
- (c)** Amina designs a game. To win the game, the player must draw a club.

A full pack of cards contains 52 cards, 13 of each suit.

Amina says that it is more likely that a player will win if they use her pack of cards than if they use a full pack of cards. Is Amina correct? Explain your answer.

[2]

- 14 The cumulative frequency graph summarises information about the time taken for 80 swimmers to swim 100 metres.



- (a) Use the graph to find the median.

(a) seconds [1]

Question continued on the next page

(b) Use the graph to find an estimate for the interquartile range.

(b) seconds [2]

(c) Calculate the percentage of the swimmers who completed the swim in under 135 seconds.

(c) % [3]

15 The equation of line L_1 is $y = 3x - 7$

The equation of line L_2 is $3y + x = 1$

Show that lines L_1 and L_2 are perpendicular.

[2]

16 The price of a piece of furniture in London is £345

The price of the furniture in Venice is €360

The price of the furniture in New York is \$385

The exchange rates are:

$$£1 = €1.16$$

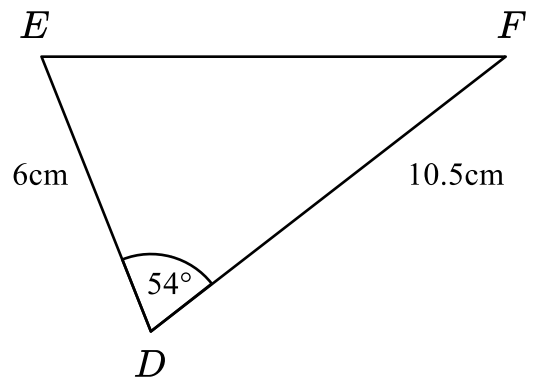
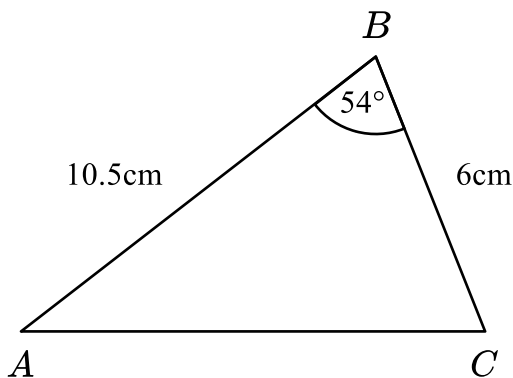
$$£1 = \$1.37$$

In which city is the furniture the most expensive?

Show how you decide.

..... [2]

17 Prove that these two triangles are congruent.



.....

.....

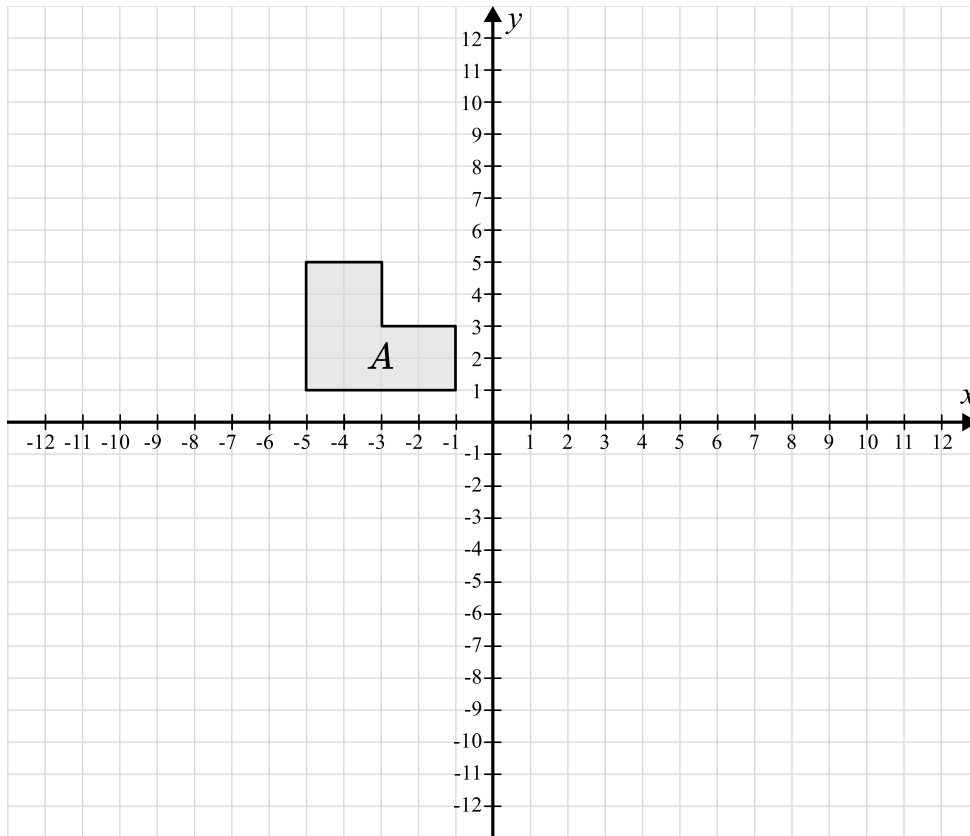
.....

.....

.....

[3]

18



Enlarge shape *A* by scale factor -2 from the centre $(0, 0)$.

[2]

19 (a) (i) Write $3\{2x + 5[4x - 7(x - 2)] - 6\}$ in the form $ax + b$

(a)(i) [2]

(ii) Expand and simplify $(x + 4)(x + 2)(x - 1)$

(a)(ii) [3]

(b) Factorise $5x^2 + 2x - 3$

(b) [2]

20 A circle's radius is increased by 12%.
Find the % increase in the circle's area.

..... % [3]

21 (a) Show that the equation $x^3 - 2x^2 - 1 = 0$ has a solution between $x = 2$ and $x = 3$

[2]

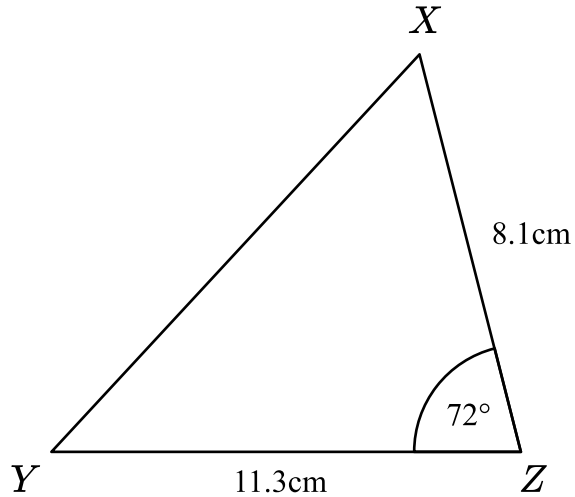
(b) Show that the equation $x^3 - 2x^2 - 1 = 0$ can be written in the form $x = \sqrt[3]{2x^2 + 1}$

[1]

(c) Starting with $x_0 = 2.5$, use the iterative formula $x_{n+1} = \sqrt[3]{2x_n^2 + 1}$ four times to find an estimate for the solution of $x^3 - 2x^2 - 1 = 0$
Give each value to 4 decimal places.

[3]

22 Here is a triangle.



(a) Work out the length XY .

Give your answer to 3 significant figures.

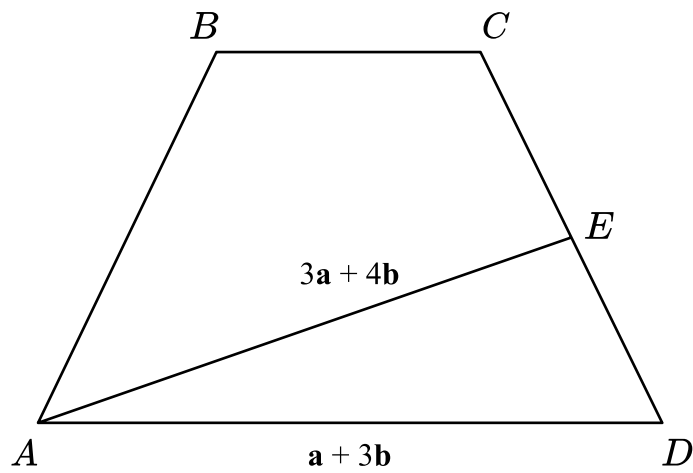
(a) cm [3]

(b) Work out the area of triangle XYZ .

Give your answer to 3 significant figures.

(b) cm^2 [3]

23



$$\vec{AD} = \mathbf{a} + 3\mathbf{b}$$

$$\vec{AE} = 3\mathbf{a} + 4\mathbf{b}$$

$$CE : ED = 5 : 4$$

Express \vec{AC} in terms of \mathbf{a} and \mathbf{b} .

Give your answer in its simplest form.

----- [4]

24 (a) Write $11 + 12x - 2x^2$ in the form $a - b(x - c)^2$ where a , b and c are integers.

(a) [3]

(b) C is the curve with equation $y = 11 + 12x - 2x^2$

A is the maximum point of C .

Use your answer to a to write down the coordinates of point A .

(b) [1]

25 Show that $\frac{1 + \sqrt{9a}}{b - \sqrt{4a}}$ can be written in the form $\frac{m + n\sqrt{a}}{p}$,

where n , m and p are expressions in terms of a and b , and state n , m and p .

$m =$

$n =$

$p =$

[5]

26 The circle with equation $x^2 + y^2 = 25$ and the line with equation $y = 2x - 5$ intersect at the points A and B .

Work out the exact length of the line AB .

[6]


End of Questions

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