



THIRD SPACE
LEARNING

Mathematics

Paper 2

(Calculator)

Higher Tier

Edexcel GCSE

SET 4

Mathematics Paper 2 (Non-Calculator) Higher Tier Edexcel

GCSE SET 4

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.

Information

- The total mark for this paper is 80
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Question	Mark
1	
2	
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23	

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 2025 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 (a) Simplify $p^7 \div p^3$

(1)

(b) Simplify $(q^3)^5$

(1)

(c) Matthew simplifies $2x^2 \times 3x^5$

Matthew's answer is $5x^6$.

Explain Matthew's mistake.

(1)

(Total for Question 1 is 3 marks)

2 Blue and yellow paint is needed to make green paint.

5 litres of blue paint costs £17.50.

The ratio of the cost of blue paint to the cost of yellow paint is 5:6.

Work out the cost of 8 litres of yellow paint.

£

(Total for Question 2 is 4 marks)

- 3 (a) Find the highest common factor (HCF) of 80 and 112.

(2)

- (b) Find the lowest common multiple (LCM) of 32 and 40.

(2)

(Total for Question 3 is 4 marks)

- 4 (a) Find the value of the reciprocal of 0.4. Write your answer as a decimal.

(1)

- (b) $x = 230$ to 2 significant figures.
Complete the error interval for x .

 $\leq x <$

(2)

(Total for Question 4 is 3 marks)

- 5 The cost of 3 teas and 4 coffees is £10.80.
The cost of 2 teas and 5 coffees is £11.40.

Work out the cost of 4 teas and 1 coffee.
You must show all your working.

(Total for Question 5 is 5 marks)

- 6 The radius of planet A is $4 \times 10^3 \text{ km}$
The volume of planet B is 9.05×10^{11}

Volume of a Sphere: $V = \frac{4}{3}\pi r^3$

How many times greater is the radius of planet B than the radius of planet A ?

(Total for Question 6 is 4 marks)

7 Some people were asked whether they had any siblings.

80% of the people said yes.

60% of the people who said yes had more than one sibling.

What percentage of the people asked had more than one sibling?

(Total for Question 7 is 2 marks)

8 Make f the subject of the formula $x = \frac{2f - p}{5}$.

$f =$ -----
(Total for Question 8 is 2 marks)

- 9 Use your calculator to work out

$$\frac{\sqrt{1.32^2 + 1}}{\sin 30}$$

Give your answer correct to 3 significant figures.

(Total for Question 9 is 2 marks)

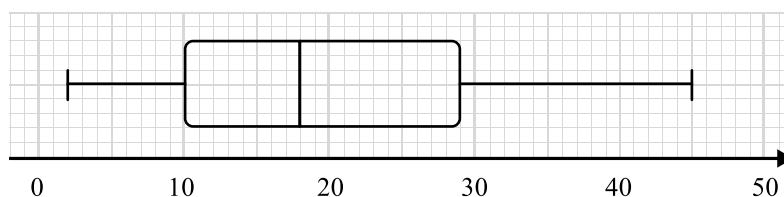
- 10 In a restaurant, there are 360 ways to choose one starter, one main and one dessert.

There are 8 starters and 9 mains.

How many desserts are there?

(Total for Question 10 is 2 marks)

- 11 The boxplot shows information about the waiting time at a GP surgery.



Cecile says

‘More than three quarters of patients were seen in under 30 minutes.’

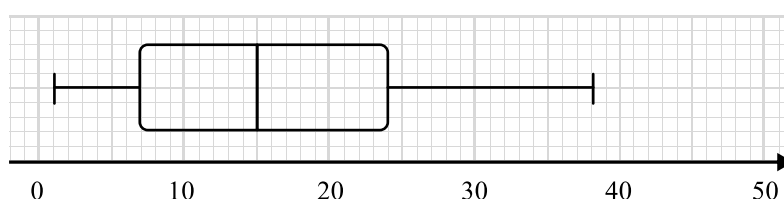
Is Cecile correct?

(a) Explain how you know.

(1)

The surgery introduced a new appointment system.

This boxplot shows information about the waiting times after the change.



Compare the distributions of the waiting times before and after the appointment system was changed.

(2)

(Total for Question 11 is 3 marks)

12 Jeremy wants to know whether his dice is biased.

Jeremy rolls the dice 60 times.
Here are the results.

Number	Frequency
1	11
2	19
3	8
4	6
5	7
6	9

(a) Jeremy thinks the dice is biased. Do you think Jeremy is correct?

Explain your answer.

(1)

(b) Explain how Jeremy could improve his experiment.

(1)

(Total for Question 12 is 2 marks)

13 A and B are points on a centimetre grid.

A is the point with coordinates $(-6, 4)$

B is the point with coordinates $(3, -8)$

(a) Work out the length of AB .

----- *cm*

(2)

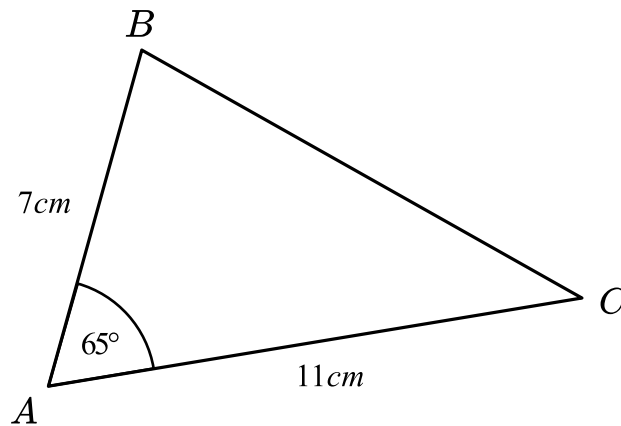
(b) The line $4y = 3x + 34$ passes through the point $(-6, 4)$.

Show that this line is perpendicular to the line AB .

(3)

(Total for Question 13 is 5 marks)

14 ABC is a triangle.



Find the length of BC .

Give your answer correct to 3 significant figures.

..... cm

(Total for Question 14 is 3 marks)

15 Here are the first four terms of a quadratic sequence.

5 11 19 29

Find an expression, in terms of n , for the n th term of this sequence.

.....
(Total for Question 15 is 3 marks)

- 16 (a)** Use the iterative formula $x_{n+1} = \sqrt[3]{8 - 3x_n}$ to find the values of x_1 , x_2 and x_3
Start with $x_0 = 2$

$$x_1 = \text{-----}$$

$$x_2 = \text{-----}$$

$$x_3 = \text{-----}$$

(3)

- (b)** Explain the relationship between x_1 , x_2 and x_3 and the equation

$$x^3 + 3x - 8 = 0$$

(1)**(Total for Question 16 is 4 marks)**

17

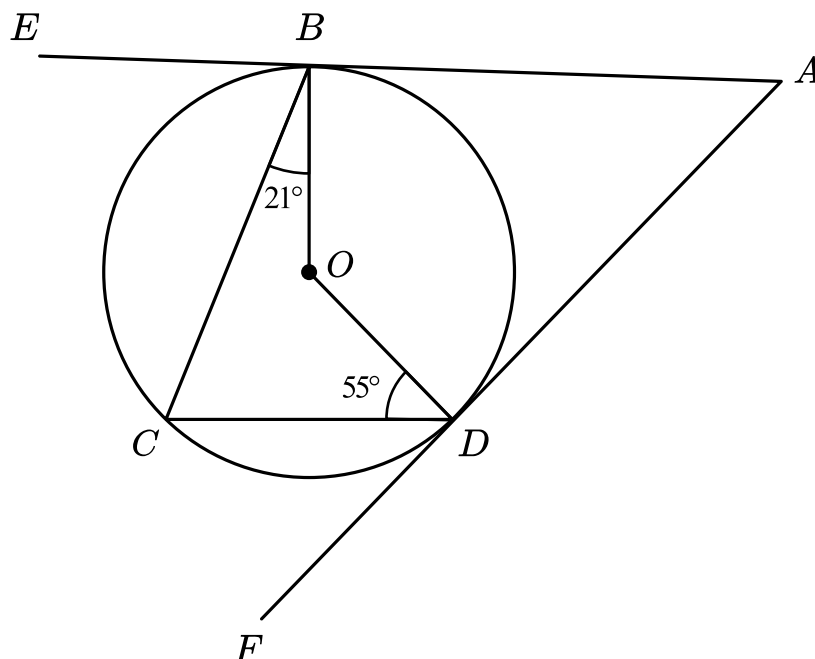


Diagram NOT
accurately drawn

B , C and D are points on a circle with centre O .
 ABE and ADF are tangents to the circle.

Angle $CBO = 21^\circ$

Angle $CDO = 55^\circ$

Work out the size of angle DAB .

You must show all your working.

 (Total for Question 17 is 4 marks)

18 A frustum is made by removing a small cone from a similar large cone.

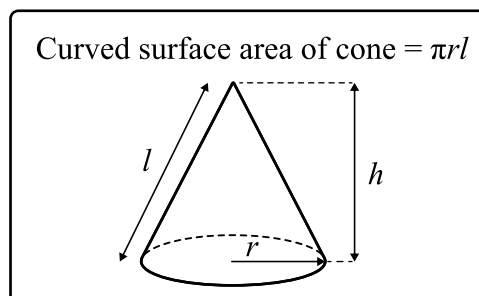
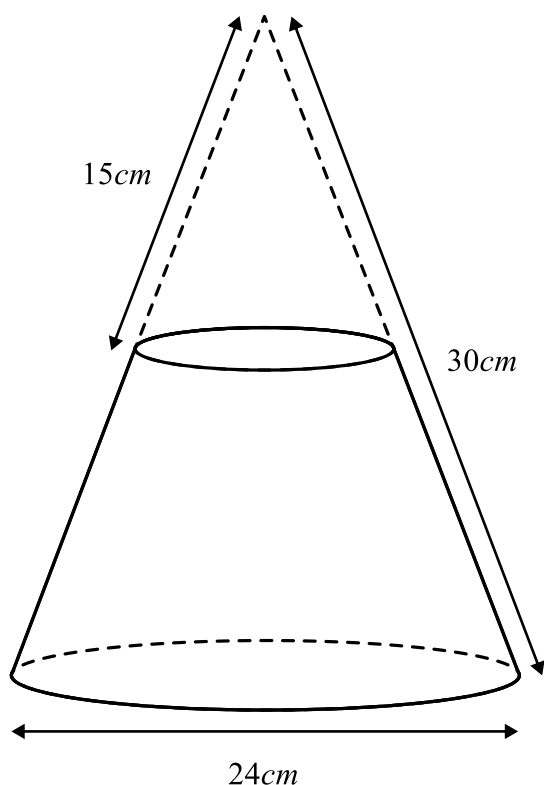


Diagram NOT
accurately drawn

The slanted height of the small cone is 15cm .

The slanted height of the large cone is 30cm .

The diameter of the base of the large cone is 24cm .

Work out the surface area of the frustum.

Give your answer to 3 significant figures.

cm^2

(Total for Question 18 is 4 marks)

19 Here is some information about the lengths of some songs.

Time, t (seconds)	Frequency
$0 < t \leq 120$	6
$120 < t \leq 180$	15
$180 < t \leq 210$	18
$210 < t \leq 240$	12
$240 < t \leq 360$	12

Pablo draws a histogram to show this information.

The height of the bar for $180 < t \leq 210$ is $1.8cm$.

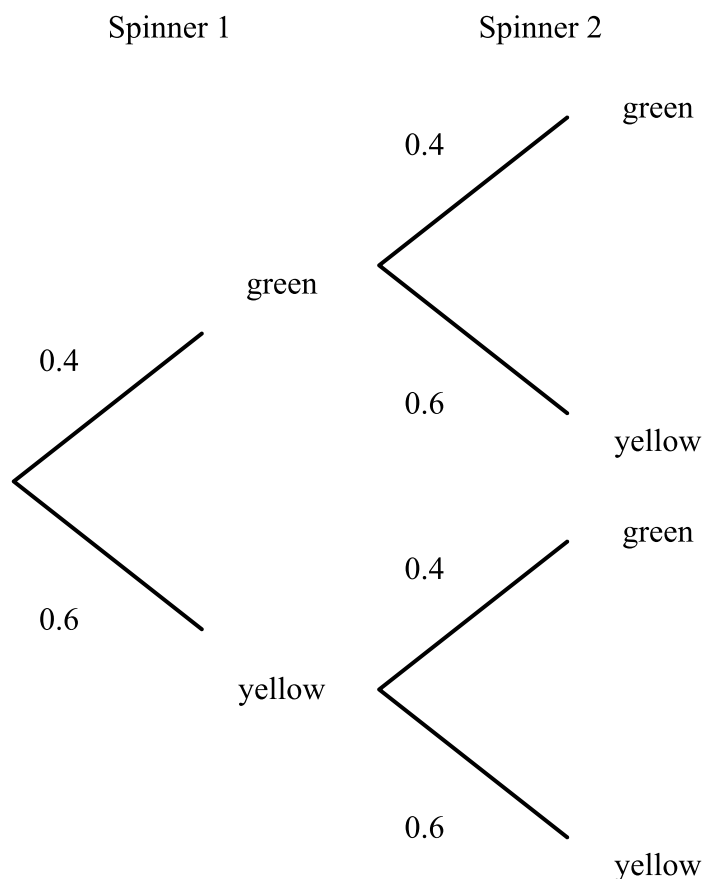
Find the height of the bar for $210 < t \leq 240$.

cm

(Total for Question 19 is 3 marks)

- 20** Sophie has two identical spinners, each with two colours, green and yellow.
The probability that each spinner lands on green is 0.4 and the probability that each spinner lands on yellow is 0.6.

The probability tree diagram shows this information.



Sophie spins the spinners a number of times.

The number of times both spinners land on green is 24.

Work out an estimate for the number of times both spinners land on yellow.

(Total for Question 20 is 3 marks)

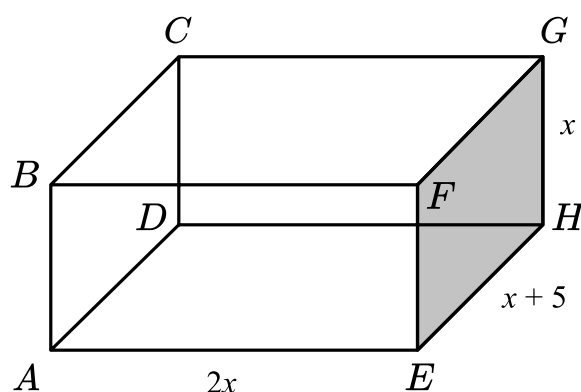
21 $x:y = 3:7$

$$2x + y = 117$$

Work out the value of $x + 2y$.

(Total for Question 21 is 3 marks)

22 A packaging company is designing a cuboid shaped packet with dimensions shown.



It is required that the length of AG is at least 7cm .

(a) Show that $6x^2 + 10x - 24 > 0$

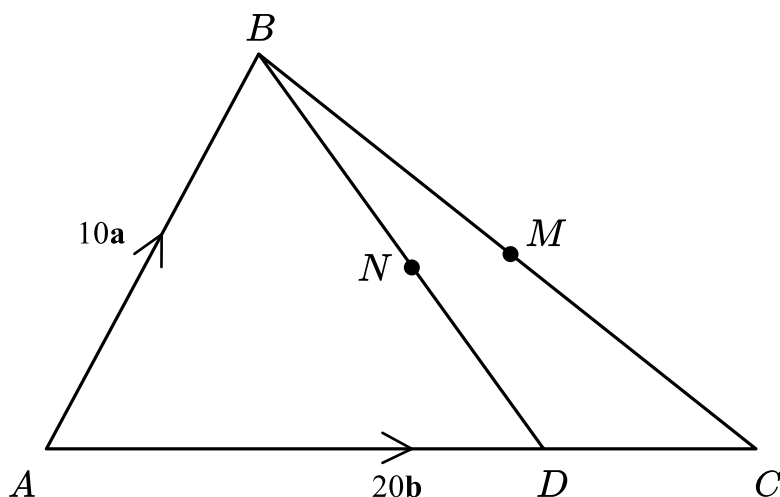
(3)

(b) Find the range of possible values of x .

(3)

(Total for Question 22 is 6 marks)

23



$$\vec{AB} = 10\mathbf{a}$$

$$\vec{AC} = 20\mathbf{b}$$

$$\vec{AD} = x \vec{AC}$$

$$BN:ND = 3:2$$

M is the midpoint of BC .

(a) Show that $\vec{AM} = 5\mathbf{a} + 10\mathbf{b}$

(2)

(b) Given that $x = \frac{2}{3}$, show that ANM is a straight line.

$x =$ _____

(4)

(Total for Question 23 is 6 marks)

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