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4MA1 June 2027 Paper 1H Best Guess Paper

Higher · Target 9 · Question Paper

Disclaimer

This independently compiled practice paper is for students preparing for Pearson Edexcel International GCSE Mathematics A (4MA1), Higher Tier, Paper 1H. A calculator may be used.

This is not an official Pearson Edexcel examination paper and is not endorsed by Pearson. Best Guess questions are independent practice, not a guarantee of what will appear in the exam.

Revise the full specification. Attempt the matching question paper before using the mark scheme, model answers and practice resources at www.mygrade9mathstutor.com.

If you find this paper helpful, please support me by buying me a coffee

Video walkthrough

Calculator allowed · 22 questions · 100 marks · Suggested time: 2 hours.

International GCSE Mathematics

Formulae sheet – Higher Tier

Arithmetic series

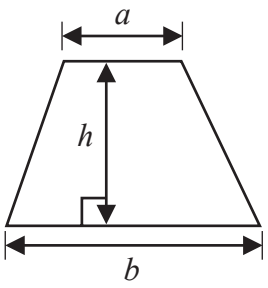
Sum to n terms, $S_n = \frac{n}{2}[2a + (n-1)d]$

The quadratic equation

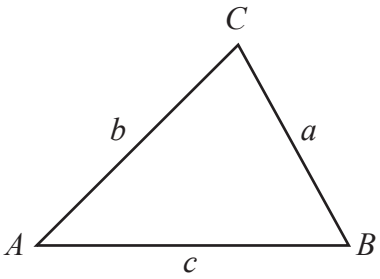
The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$ are given by:

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

Area of trapezium $= \frac{1}{2}(a+b)h$



Trigonometry



In any triangle *ABC*

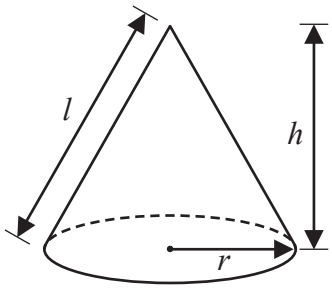
Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$

Cosine Rule $a^2 = b^2 + c^2 - 2bc\cos A$

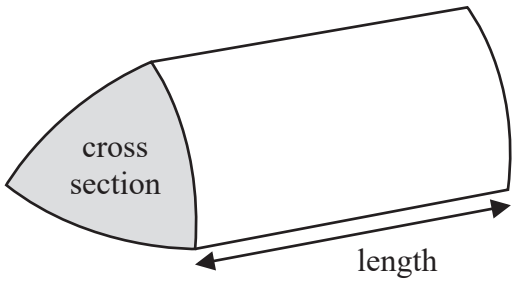
Area of triangle $= \frac{1}{2}ab\sin C$

Volume of cone $= \frac{1}{3}\pi r^2 h$

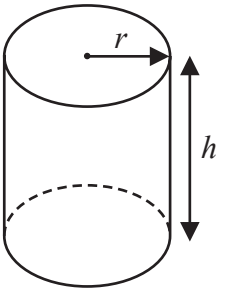
Curved surface area of cone $= \pi r l$



Volume of prism
= area of cross section × length

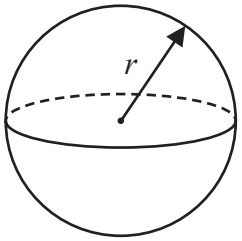


Volume of cylinder $= \pi r^2 h$
Curved surface area of cylinder $= 2\pi r h$



Volume of sphere $= \frac{4}{3}\pi r^3$

Surface area of sphere $= 4\pi r^2$



Answer ALL TWENTY-TWO questions.
Write your answers in the spaces provided.
You must show all stages of your working.

1 (a) Expand and simplify $3(2x - 5) - 2(x + 4)$.

.....

(2)

(b) Factorise fully $18a^2b - 12ab^2$.

.....

(2)

(c) Solve the inequality $5y - 3 > 2y + 12$.

.....

(2)

(Total for Question 1 is 6 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 6 Review: ____ / ____

2 Find the equation of the line that passes through (2, 5) and (6, 17).
Give your answer in the form $y = mx + c$.

.....

(Total for Question 2 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

3 **Zoe** wants to make a total of 180 bags of beads to sell at a fair.
She will make small bags and large bags where
number of small bags : number of large bags = 7 : 5

Each small bag will contain 65 grams of beads.
Each large bag will contain 145 grams of beads.

Zoe thinks she will need less than 17 kilograms of beads to fill 180 bags.

Is Zoe correct?
You must show how you get your answer.

(Total for Question 3 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

4 y is directly proportional to the cube of x.
When $x = 2$, $y = 40$.
Find x when $y = 1080$.

(Total for Question 4 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

5 There are 7 red counters and 5 blue counters in a bag.
Emma takes a counter at random, keeps it, and then takes a second counter.
Work out the probability that Emma takes counters of different colours.

(Total for Question 5 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

6 A, B, C and D lie on the circumference of a circle with centre O.
Angle AOC = 130°. B and D lie on opposite arcs AC.

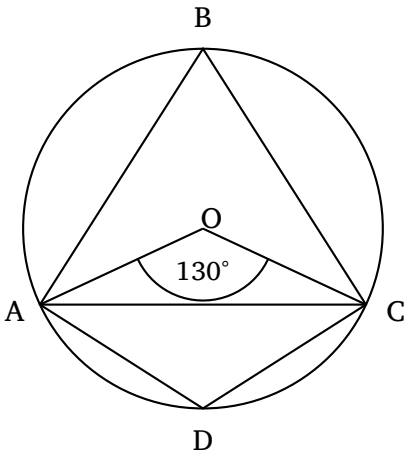


Diagram not to scale

(a) Work out angle ABC. Give a reason for your answer.

.....

(2)

(b) Work out angle ADC. Give a reason for your answer.

.....

(2)

(Total for Question 6 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

7 The nth term of a sequence is $u_n = n^2 - 3n + 5$.

(a) Find the first three terms of the sequence.

(2)

(b) Is 113 a term of this sequence? Show algebraic working to justify your answer.

(3)

(Total for Question 7 is 5 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 5 Review: ____ / ____

8 Simplify fully.

$$\frac{2x^2 + 5x - 12}{2x^2 + 7x - 4}$$

(Total for Question 8 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

9

Solve the inequality

$$3x^2 - 14x - 5 > 0$$

Write your answer using set notation.

. . . . . .

(Total for Question 9 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

10

Keeley is asked to solve the following problem.

The variable P is related to variables q and r by the formula

$$P = \frac{kq^3}{\sqrt{r}}$$

where k is a constant.

q is increased by 20%.
r is decreased by 36%.

Work out the percentage increase in the value of P.

.....%

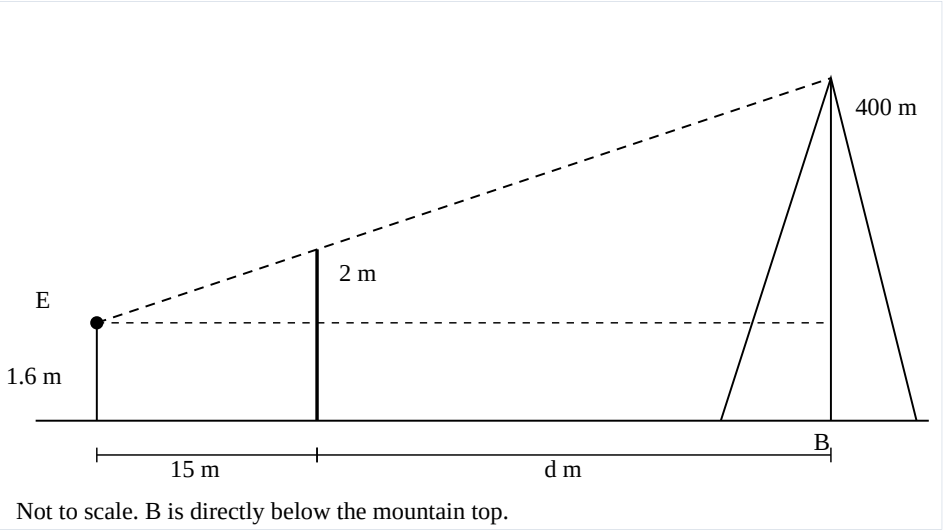
(Total for Question 10 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

11

Katie's eye level is at 1.6 m above the ground. She is looking at a mountain that she knows is 400 m tall. There is a 2 m tall pine tree between her and the mountain.

When she is standing 15 m away from the base of the tree, the top of the mountain is just hidden by the top of the pine tree. All measurements have been taken from level ground.



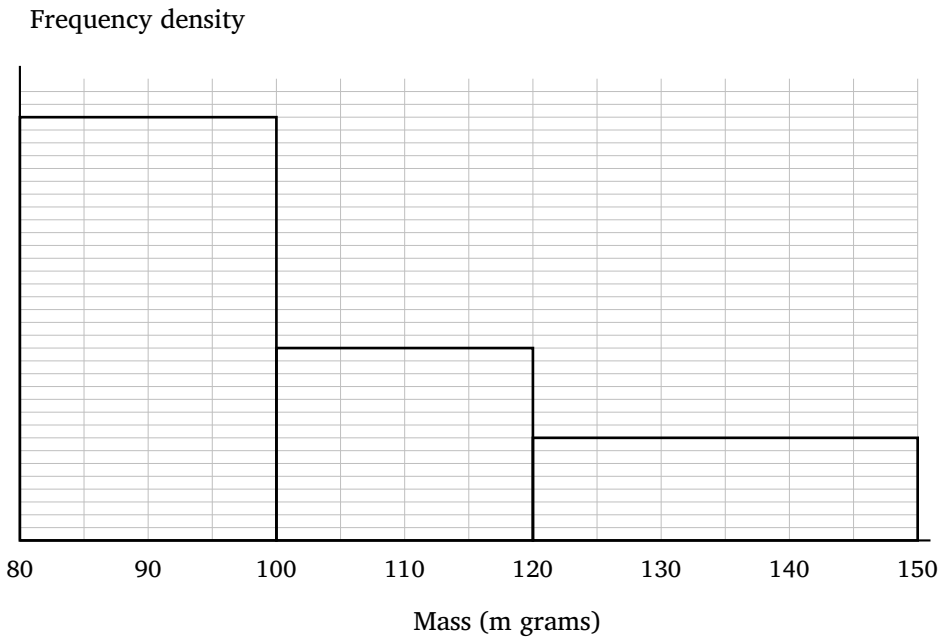
Not to scale. B is directly below the mountain top.

Calculate how far the mountain is from the other side of the tree.

(Total for Question 11 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

12 The histogram shows the masses of 120 apples. The vertical scale is not labelled.
The bar for $100 < m \leq 120$ represents 30 apples.
Work out the number of apples with a mass greater than 120 grams.



(Total for Question 12 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

13 The circle has centre $(3, 2)$ and radius 5.
The point A has coordinates $(7, 5)$.

Find the equation of the tangent to the circle at A.
Give your answer in the form $ax + by = c$, where a, b, and c are integers.

(Total for Question 13 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

14 OABC is a parallelogram. Vector OA = **a** and vector OC = **c**.
X lies on AC such that AX : XC = 1 : 3.
Find vector OX in terms of **a** and **c**. Give your answer in its simplest form.

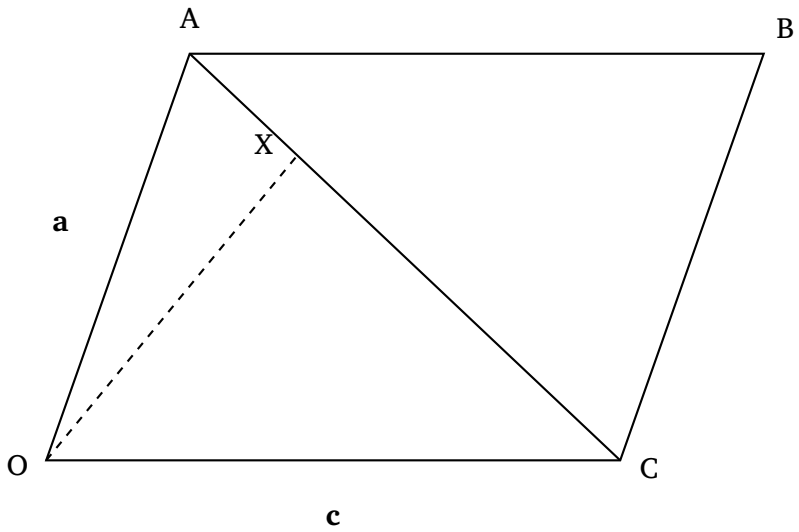


Diagram not to scale

(Total for Question 14 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

15

ξ is the universal set of 100 students in a year group.

A and B are two clubs that students can join.

- x^2 students belong to club A only.
- $5x$ students belong to both club A and club B.
- $2x + 10$ students belong to club B only.
- 12 students do not belong to either club.

A student is chosen at random from the year group.
Work out the probability that this student belongs to club A.

. . . . . .

(Total for Question 15 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

16 The functions f and g are defined by

$$f(x) = \frac{2x + 1}{x - 3} \quad (x \neq 3), \; g(x) = x^2 - 4.$$

(a) Find f(4).

.....

(1)

(b) Solve the equation $fg(x) = \frac{11}{2}$.

.....

(4)

(c) Find the inverse function $f^{-1}(x)$.

.....

(2)

(Total for Question 16 is 7 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 7 Review: ____ / ____

17 A rectangle has length $(10 - x)$ cm and width $(3x + 6)$ cm.

(a) Show that the area of the rectangle, A cm^2, is given by $A = 60 + 24x - 3x^2$.

(2 marks)

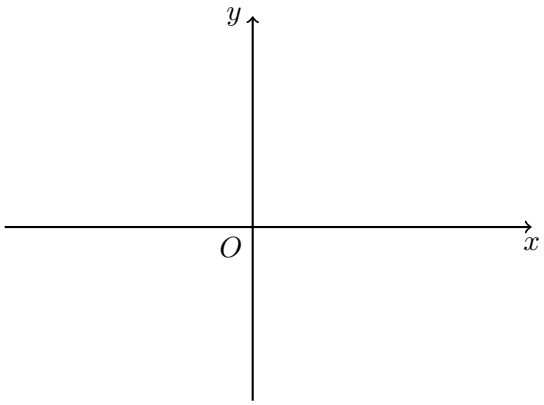
(b) By completing the square, find the maximum possible area of this rectangle, and the exact value of x for which this maximum area occurs.

Maximum area $=$ .....cm^2 at $x =$ ..... *(4 marks)*

Question continues on the next page.

17 (continued)

(c) Hence, sketch the graph of $y = -3x^2 + 24x + 60$, clearly showing the coordinates of the turning point and the exact coordinates of any intercepts with the coordinate axes.



(3 marks)

(Total for Question 17 is 9 marks)

Model Solution	Practice Perfect Questions
Clip	Worksheet

18

ABCD is a rectangle. PQRS is a square with P on AB, R on BC and S on CD. Q lies outside the rectangle. T is where QR crosses AB. AB = 8 cm, BC = 4 cm and PQ = 5 cm. The shaded region is inside both shapes. Calculate its exact area. Show all your working.

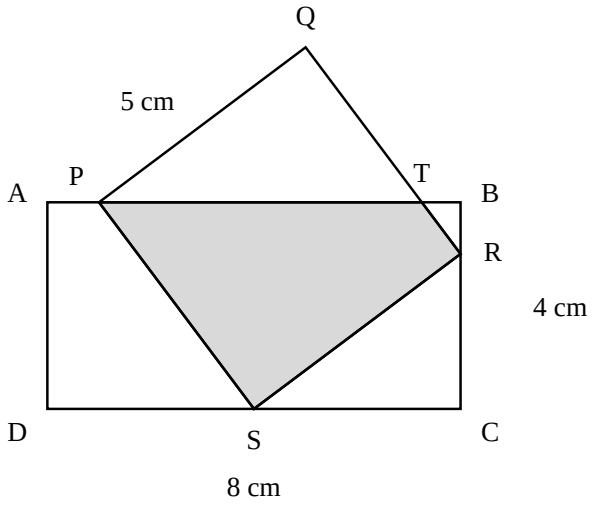


Diagram not to scale. T is where QR crosses AB.

(Total for Question 18 is 5 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 5 Review: ____ / ____

19

A particle P moves along a straight line.
The displacement, s metres, of P from a fixed point O at time t seconds is given by:

$$s = t^3 - 7.5t^2 + 12t + 4$$

(a) Find an expression for the velocity, v m/s, of P at time t.

.....

(2 marks)

(b) Find the time at which the acceleration of P is 0 m/s^2.

$t =$ .....

(3 marks)

(Total for Question 19 is 5 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 5 Review: ____ / ____

20

Ship A and Ship B both leave Port P at the same time.
Ship A sails 35 km on a bearing of 052°.
Ship B sails 58 km on a bearing of 118°.

Calculate the bearing of Ship B from Ship A.
Give your answer correct to the nearest degree.
Show all of your working clearly.

. . . . . °

(Total for Question 20 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

21 Find the values of n such that

$$\left(\frac{10^{2n} \times 2^{2(n^2-4n)} \times 5^{2(2-n)}}{50^2}\right)^{\frac{2}{3}} = 16$$

Show clear algebraic working.

(Total for Question 21 is 5 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 5 Review: ____ / ____

22 A solid cone has base radius r cm, perpendicular height h cm and slant height l cm.
Its total surface area is 24π cm^2. Given that $l = 3r$, find the exact value of h.
Give your answer in the form $a\sqrt{b}$, where a and b are integers.

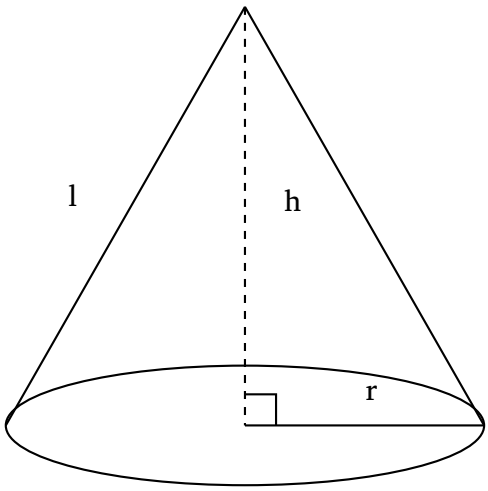


Diagram not to scale

(Total for Question 22 is 6 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 6 Review: ____ / ____

END OF PAPER

MYGRADE9MATHS TUTOR • PROGRESS & MASTERY RECORD

4MA1 June 2027 Paper 1H — Success Tracker

Name: _____

International GCSE Mathematics A • Higher Tier (Target Grade 9 Challenge Paper) Date Started: _____

How to build exam confidence (no totals or percentages needed): Tick **Nailed It** when you solve a question right first time. If you get stuck, scan the QR code and tick **Watched Clip**. Once you complete the Practice Perfect set and re-solve the question cold, tick **Mastered It**—every tick here is a topic you turned from a gap into a strength.

Q#	Topic Focus	Nailed It	Watched Clip	Mastered It	Come Back	Marks
1	Expanding, Factorising & Linear Inequalities	☐	☐	☐	☐	/ 6
2	Equation of a Straight Line Through Two Points	☐	☐	☐	☐	/ 3
3	Sharing in a Ratio & Mass Unit Conversions	☐	☐	☐	☐	/ 4
4	Direct Proportion to the Cube of x	☐	☐	☐	☐	/ 3
5	Probability Without Replacement (Different Colours)	☐	☐	☐	☐	/ 3
6	Circle Theorems with Geometrical Reasons	☐	☐	☐	☐	/ 4
7	Quadratic Sequences (Generating & Testing Terms)	☐	☐	☐	☐	/ 5
8	Simplifying Algebraic Fractions (Quadratics)	☐	☐	☐	☐	/ 3
9	Quadratic Inequalities in Set Notation	☐	☐	☐	☐	/ 4
10	Percentage Change in Compound Formulae	☐	☐	☐	☐	/ 4
11	Similar Triangles in Practical Context	☐	☐	☐	☐	/ 4
12	Histograms (Unlabelled Frequency Density Scale)	☐	☐	☐	☐	/ 4
13	Equation of a Tangent to a Shifted Circle	☐	☐	☐	☐	/ 4
14	Vector Geometry in a Parallelogram	☐	☐	☐	☐	/ 4
15	Venn Diagrams Forming a Quadratic & Probability	☐	☐	☐	☐	/ 4
16	Composite & Inverse Functions	☐	☐	☐	☐	/ 7
17	Completing the Square, Turning Point & Sketch	☐	☐	☐	☐	/ 9
18	Overlapping Rectangle & Square Exact Area	☐	☐	☐	☐	/ 5
19	Kinematics & Calculus (Velocity & Acceleration)	☐	☐	☐	☐	/ 5
20	Bearings, Cosine Rule & Sine Rule	☐	☐	☐	☐	/ 4
21	Complex Exponential Equations & Fractional Powers	☐	☐	☐	☐	/ 5
22	Cone Surface Area & Exact Surd Height	☐	☐	☐	☐	/ 6

HABIT & SUCCESS MILESTONES (TICK AS YOU COMPLETE THEM)

☐ Attempted every question (Q1–Q22) ☐ Watched clips for tough topics ☐ Cleared all "Come Back" boxes

Biggest win on this paper (a topic I couldn't do before, but can do now): _____