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1MA1 June 2027 Paper 1H Best Guess Paper

Higher · Standard · Question Paper

Disclaimer

This independently compiled practice paper is for students preparing for Pearson Edexcel GCSE Mathematics (1MA1), Higher Tier, Paper 1H. This is a non-calculator paper.

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

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Video walkthrough

Full walkthrough QR not yet linked.

Non-calculator · 24 questions · 80 marks · Suggested time: 1 hour 30 minutes.

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

1 Work out 54.6×4.3

.....

(Total for Question 1 is 2 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 2 Review: ____ / ____

2 Write 124 as a product of its prime factors.

.....

(Total for Question 2 is 2 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
Clip	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 2 Review: ____ / ____

3 Show that

$$3\frac{1}{5} \times 2\frac{5}{8} = 8\frac{2}{5}$$

You must show all your working clearly.

(Total for Question 3 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: ____ / ____

4 Dom buys a vintage watch for £160.

He sells the watch for £184.

Work out Dom's percentage profit.

..... %

(Total for Question 4 is 2 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 2 Review: ____ / ____

5 Evaluate the following index expressions:

(a) Find the value of k when $5^k = 1$.

k = ...

(1)

(b) Find the value of m.

$$\frac{27}{3^8} = 3^m$$

m = ...

(1)

(c) Find the value of p.

$$(7^{-4})^3 \times 7^5 = 7^p$$

p = ...

(1)

(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 The table shows some information about the ages of 70 teachers.

Age (a years)	Frequency
$20 < a \leq 30$	8
$30 < a \leq 40$	18
$40 < a \leq 50$	24
$50 < a \leq 60$	14
$60 < a \leq 70$	6

(a) Write down the modal class interval.

.....

(1)

(b) Draw a frequency polygon for the information in the table.



(2)

(Total for Question 6 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

7 Solve $5x - 3 \leq 2x + 9$ and write down all the integer solutions for x if $x > 0$.

Integer solutions: .....

(Total for Question 7 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

8 (a) Write 0.0000407 in standard form.

.....

(1)

(b) Work out the value of $(3.2 \times 10^4) \times (5 \times 10^3)$.

Give your answer in standard form.

.....

(2)

(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 Calculate the total perimeter of a sector with radius r = 12 cm and angle θ = 60°.

Give your answer in terms of π.

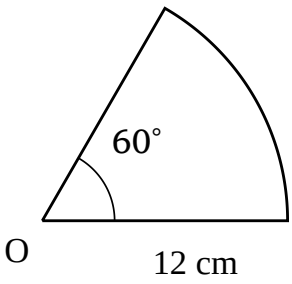


Diagram not to scale

..... cm

(Total for Question 9 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

10 The diagram shows a regular hexagon and a regular pentagon sharing a common edge.

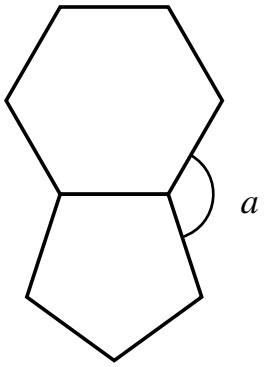


Diagram not to scale

Find a.

You must show all your working.

a = ... °

(Total for Question 10 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: ____ / ____

11 (a) Factorise $x^2 - 11x + 24$

.....

(2)

(b) Hence, solve the equation $x^2 - 11x + 24 = 0$

x = ...

(1)

(Total for Question 11 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: ____ / ____

12 Solve the simultaneous equations.

Show clear algebraic working.

$$3x + 2y = 14$$

$$5x - 3y = 17$$

x = ...

y = ...

(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 table below shows summary statistics for test scores of Class A and Class B.

Group	Min	Q1	Median	Q3	Max
Class A	20	35	55	70	90
Class B	30	45	60	70	85

(a) Calculate the interquartile range (IQR) for Class A.

Class A: .....

(1)

(b) Compare the distributions of test scores for Class A and Class B.

.....

.....

.....

(2)

(Total for Question 13 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

14 There are only red counters, blue counters, and yellow counters in a bag.

The ratio of red counters to blue counters is 3:4.

The ratio of blue counters to yellow counters is 2:5.

Sam says, "Exactly half of the counters in the bag are yellow."

Is Sam correct? You must show your working and give a reason for your answer.

.....

.....

(Total for Question 14 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: ____ / ____

15 Liquid A has a density of 1.2 g/cm^3.

Liquid B has a density of 0.8 g/cm^3.

300 cm^3 of Liquid A is mixed with 200 cm^3 of Liquid B to make Liquid C.

Work out the density of Liquid C.

..... g/cm^3

(Total for Question 15 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: ____ / ____

16 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 16 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: ____ / ____

17 Simplify fully.

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

.....

(Total for Question 17 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: ____ / ____

18 Find the exact value of

$$\frac{\sin 30^\circ + \cos 60^\circ}{\tan 60^\circ}$$

Give your answer in its simplest form with a rational denominator.

.....

(Total for Question 18 is 3 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 3 Review: ____ / ____

19 OABC is a parallelogram. Vector OA = **a** and vector OC = **c**.

X lies on AC such that AX : XC = 1 : 3.

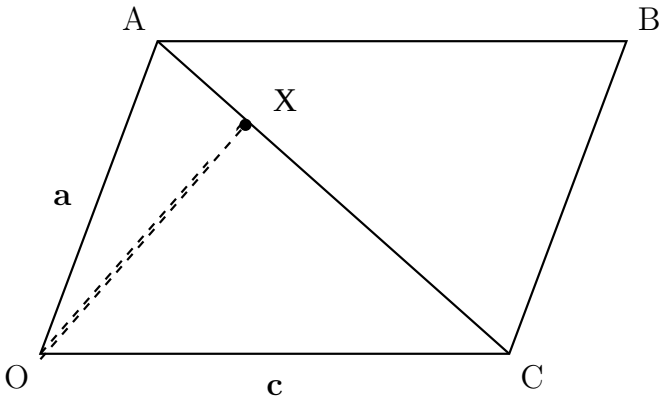


Diagram not to scale

Find vector OX in terms of **a** and **c**. Give your answer in its simplest form.

OX = ...

(Total for Question 19 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: ____ / ____

20 x and y are recurring decimals.

$$x = 0.\dot{2} \quad y = 0.6\dot{8}\dot{1}$$

Use algebra to show that xy $= \frac{5}{33}$

(Total for Question 20 is 4 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 4 Review: ____ / ____

21 A robotic lawn mower is connected to a charging post by a cable of length 4a.

The charging post is fixed at an outside corner of a square shed with side length 2a.

The mower cannot pass through the shed.

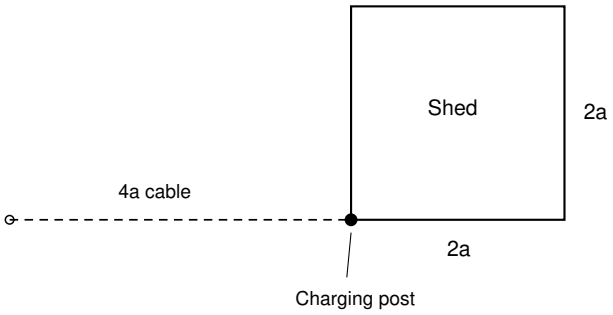


Diagram not to scale.

Find an expression, in terms of a and π, for the maximum area of grass the mower can cut.

Give your answer in its simplest form.

.....

(Total for Question 21 is 5 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 5 Review: ____ / ____

22 Catherine is working on her algebra homework.

Prove algebraically that the difference between the squares of any two consecutive odd numbers is always a multiple of 8.

(Total for Question 22 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: ____ / ____

23 (i) Express $-3x^2 - 18x + 4$ in the form $a - b(x + c)^2$ where a, b and c are integers.

.....

(3)

(ii) Using your answer to part (i), solve the equation $-3x^2 - 18x + 4 = 0$

Show clear algebraic working.

Give your answer in the form $\frac{\pm\sqrt{m} - n}{p}$ where m, n and p are integers.

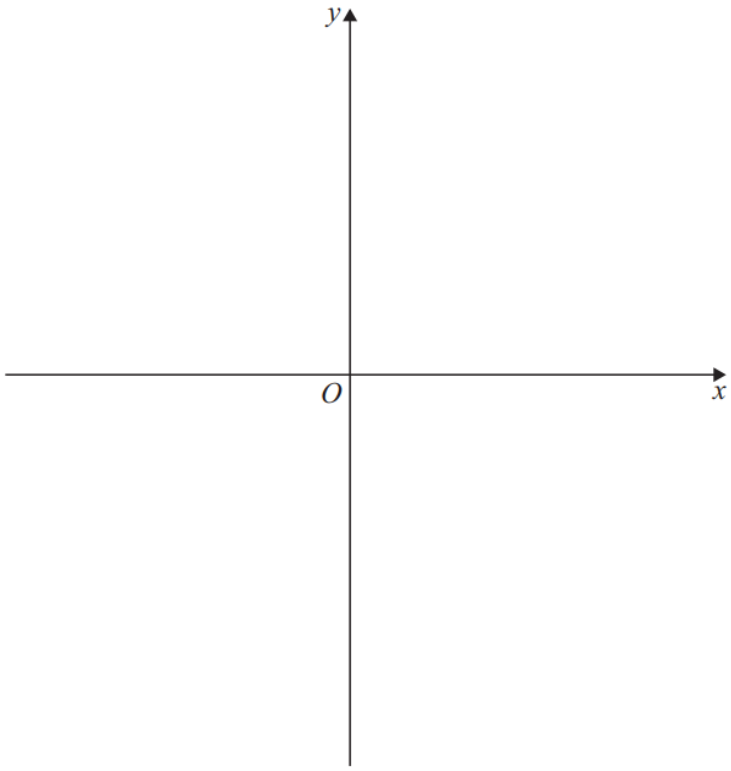
x = ...

(3)

Question 23 continues on the next page.

Question 23 — continued

(iii) Hence, sketch the graph of $y = -3x^2 - 18x + 4$, clearly showing the coordinates of the turning point and the exact coordinates of any intercepts with the coordinate axes.



(2)

(Total for Question 23 is 8 marks)

Model Solution	Practice Perfect Questions	Progress & Mastery
QR not available yet	Worksheet	☐ Nailed It ☐ Watched Clip ☐ Mastered It ☐ Come Back To It Marks: ____ / 8 Review: ____ / ____

24 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.

n = ...

(Total for Question 24 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: ____ / ____

TOTAL FOR PAPER: 80 MARKS