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1MA1 Nov 2026 Paper 3H
Normal Higher · Question Paper

Disclaimer

This independent Best Guess practice resource prepares students for Pearson Edexcel GCSE Mathematics 1MA1 Higher Tier Paper 3 (calculator). It covers accessible and challenging Higher questions, not just one target grade.

This is not an official Pearson Edexcel paper or a guarantee of the questions that will appear. Revise the full specification.

Attempt all 20 questions, show your working, then use the matching mark scheme, worked solutions and available worksheets and clips at www.mygrade9mathstutor.com.

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Walkthrough playlist

Calculator allowed · 20 questions · 80 marks · Suggested time: 1 hour 30 minutes.
Answer every question. Give appropriate units and show all stages of your working.

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

1. A plane has a length of 78 metres.

A scale model is made of the plane.
The scale of the model is 1: 200

(a) Work out the length of the scale model.
Give your answer in centimetres.

..... cm (3)

(b) Work out the value of 7^0.

..... (1)

(Total for Question 1 is 4 marks)

Clip	Practice Worksheet

2. Here are eight numbers written in order of size:

$$p, \quad 4, \quad 7, \quad 10, \quad q, \quad 15, \quad r, \quad r$$

where p, q, and r are integers.
The median of the eight numbers is **11**
The mode of the eight numbers is **19**
The range of the eight numbers is **16**
Work out the value of p, the value of q and the value of r.

p = ...

q = ...

r = ...

(Total for Question 2 is 3 marks)

Clip	Practice Worksheet

3 The length of a table is measured as 1.6 metres correct to one decimal place.

(a) Write down the upper bound of the length of the table.

..... metres (1)

(b) Write down the lower bound of the length of the table.

..... metres (1)

(Total for Question 3 is 2 marks)

Clip	Practice Worksheet

4 a) Expand and simplify $(x - 4)(x + 7)$.

.....

(2)

Model Solution	Practice Perfect Questions

(b) Factorise fully $18c^5w^2 + 30cw^3$

.....

(2)

Model Solution	Practice Perfect Questions

(c) Solve

$$\frac{7x - 2}{4} = 3x + 1$$

Show clear algebraic working.

(3)

Model Solution	Practice Perfect Questions

(Total for Question 4 is 7 marks)

5. Point B is on a bearing of 075° from point A. Work out the bearing of A from B.

(Total for Question 5 is 2 marks)

Clip	Practice Worksheet

6 A solid cylinder has a radius of 4.5 cm and a height of 10 cm. Calculate the volume of the cylinder. Give your answer correct to 3 significant figures.

(Total for Question 6 is 3 marks)

Clip	Practice Worksheet

7 Carlos changes £600 into Euros (€).
The exchange rate is £1 = €1.15.
Carlos divides his Euros into money to spend and money to save in the ratio 3: 2.
He changes the money to save back into Pounds (£).
The new exchange rate is £1 = €1.18.
Work out how many Pounds (£) Carlos receives.
Give your answer to the nearest penny.

(Total for Question 7 is 5 marks)

Clip	Practice Worksheet

8 A train travels 135 km in 1 hour and 30 minutes. Work out the average speed of the train in m/s.

(Total for Question 8 is 3 marks)

Model Solution	Practice Perfect Questions

9. A bag contains only blue counters, yellow counters, black counters, and orange counters.

The table gives each of the probabilities that, when a counter is taken at random from the bag, the counter will be black or the counter will be orange.

Counter	Blue	Yellow	Black	Orange
Probability			0.15	0.45

The ratio of the number of blue counters to the number of yellow counters is 3 : 5.
There are 54 orange counters in the bag.
Work out the number of blue counters in the bag.

(4)

(Total for Question 9 is 4 marks)

Model Solution	Practice Perfect Questions

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

k = ...

(1)

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

(b) Find the value of m.

m = ...

(2)

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

(c) Find the value of p.

P = ...

(2)

(Total for Question 10 is 5 marks)

Model Solution	Practice Perfect Questions

11. Elena bought a commercial printing machine for £85,000.
In the first year, the value of the machine depreciated by 12%.
In the second year, the value of the machine depreciated by 15%.
In the third year, the value of the machine increased by x%.
At the end of the third year, the value of Elena's machine was £66,759.
Work out the value of x.

(Total for Question 11 is 4 marks)

Model Solution	Practice Perfect Questions

12 $ABCDEFGHIJK$ is a regular 11-sided polygon.

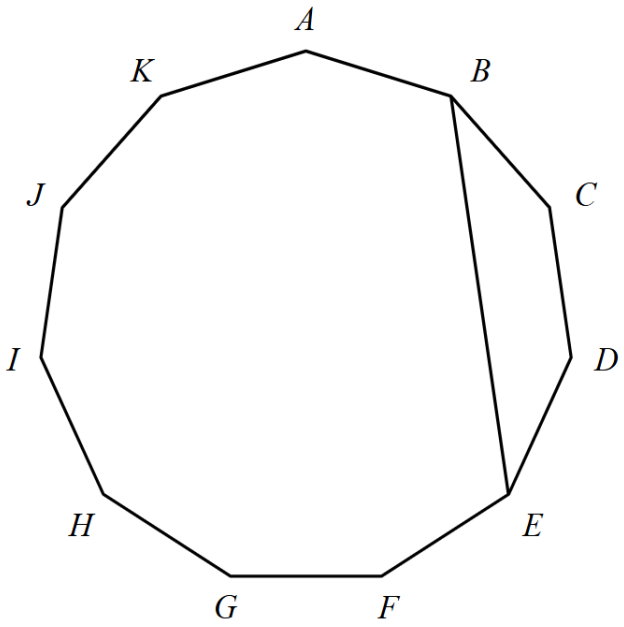


Diagram NOT accurately drawn

The vertices B and E are joined with a straight line.
Work out the size of angle BEF.
Give your answer correct to 1 decimal place.
You must show how you get your answer.

(Total for Question 12 is 4 marks)

Model Solution	Practice Perfect Questions

13. A 4-digit security code is to be formed using digits chosen from the set

$$\{1, 2, 3, 4, 5, 6, 7, 8\}$$

No digit may be used more than once in any code.
The 4-digit code must be an even number greater than 5000.

Work out the total number of possible codes that can be formed.

(Total for Question 13 is 3 marks)

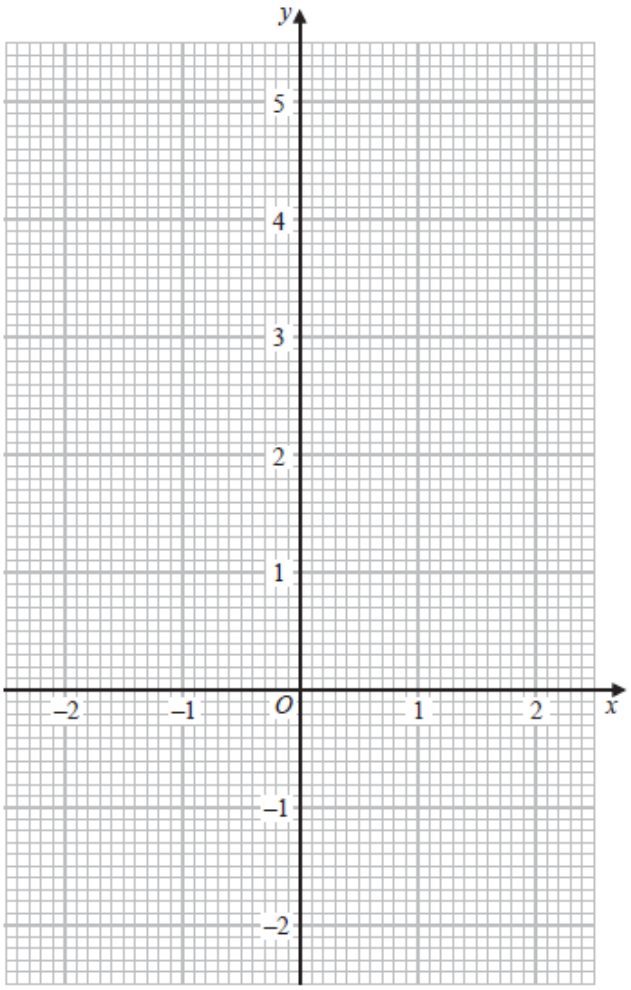
Clip	Practice Worksheet

14. *a*)Complete the table of values for $y = x^3 - 3x + 1$

x	–2	–1	–0.5	0		1	1.5	2
y		3	2.4			-1	-0.1	

(2)

(*b*) On the grid, draw the graph of $y = x^3 - 3x + 1$ for values of x from –2 to 2



(2)

(*c*) By drawing a suitable straight line on the grid, use your graph to find an estimate for the solution of $x^3 - 3x - 1 = 0$
Give your answer correct to one decimal place.

(2)

Model Solution	Practice Perfect Questions

(Total for Question 14 is 6 marks)

15. (a) Express $f(x) = 2x^2 - 12x + 23$ in the form $a(x + b)^2 + c$, where a, b, and c are integers to be found.

(3)

(b) Hence, write down the coordinates of the turning point on the curve with equation $y = 2x^2 - 12x + 23$.

.....

(1)

(Total for Question 15 is 4 marks)

Model Solution	Practice Perfect Questions

Paper continues with Question 20

16. At the start of year n, the number of animals in a population is P_{n}.

At the start of the following year, the number of animals in the population is $P_{\mathrm{n}+1}$ where

$$P_{\mathrm{n}+1} = kP_{\mathrm{n}}$$

At the start of 2018 the number of animals in the population was 5000.

At the start of 2020 the number of animals in the population was 4050.

Find the value of the constant k.

(Total for Question 16 is 3 marks)

Clip	Practice Worksheet

17. The diagram shows a right pyramid V ABCD with a horizontal square base ABCD of side length 10 cm.
The vertical height V H of the pyramid is 15 cm, where H is the centre of the base ABCD. M is the midpoint of BC.

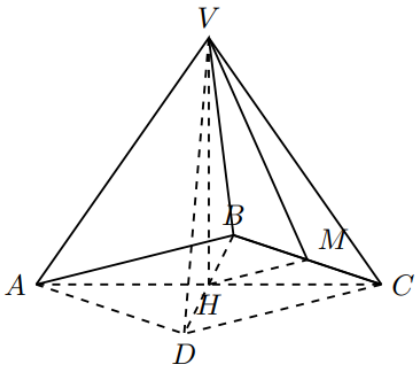


Diagram NOT accurately drawn

(a) Calculate the length of V M. Give your answer correct to 3 significant figures

(b) Calculate the angle between the triangular face V BC and the base plane ABCD. Give your answer correct to 1 decimal place.

(Total for Question 17 is 5 marks)

Model Solution	Practice Perfect Questions

18. The incomplete table gives information about the weights, in kilograms, of 160 luggage bags at an airport check-in desk.

Weight (w kg)	**Frequency**
$0 < w \leq 10$	30
$10 < w \leq 15$	a
$15 < w \leq 25$	60
$25 < w \leq 40$	b

On a histogram drawn to represent this data:

- the bar representing the class $0 < w \leq 10$ has a height of 6 cm on the vertical (frequency density) scale.
- the height of the bar for $10 < w \leq 15$ is twice the height of the bar for $25 < w \leq 40$.

(a) Work out the value of a and the value of b. (3)

(b) Write the class interval which contains the median.

(1)

(Total for Question 18 is 4 marks)

Clip	Practice Worksheet
	

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

(Total for Question 19 is 4 marks)

Clip	Practice Worksheet

20. A solid cone has a base radius of R cm and a vertical height of H cm.

A smaller cone of vertical height h cm is removed from the top of the solid cone to leave a frustum.

The volume of the frustum is $^{19}/_{27}$ of the volume of the original large cone.

The total surface area of the original large cone is 540π cm^2.

Work out the total surface area of the smaller cone that was removed.
Give your answer in terms of π.

(Total for Question 20 is 5 marks)

Clip	Practice Worksheet