

Paper Reference 1MA1/3F
Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Total Marks

Mathematics
PAPER 3 (Calculator)
Foundation Tier

Time: 1 hour 30 minutes

**In the boxes below, write your name,
centre number and candidate number.**

Surname					
Other names					
Centre Number					
Candidate Number					

YOU MUST HAVE

Ruler, protractor, compasses, writing and drawing equipment, calculator, Formulae Sheet. Tracing paper may be used.

YOU WILL BE GIVEN

Diagram Booklet

Turn over

INSTRUCTIONS

Answer ALL questions.

Answer the questions in the spaces provided in this Question Paper or on the separate diagrams – 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.

If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Turn over

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.

There may be spare copies of some diagrams in case you need to use them.

**You may be provided with a shape for Question 18 and a model for Question 24
They are NOT accurate.**

Turn over

ADVICE

Read each question carefully before you start to answer it.

Try to answer every question.

Check your answers if you have time at the end.

Turn over

6

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

Turn over

7

- 1. Write the following four numbers in order of size.**

Start with the smallest number.

0.41

0.5

0.46

0.408

(Total for Question 1 is 1 mark)

Turn over

2. Write down the value of the **2** in the number **12 345**

(Total for Question 2 is 1 mark)

3. Write $\frac{4}{5}$ as a decimal.

(Total for Question 3 is 1 mark)

Turn over

10

4. Write 19.4949 correct to the nearest whole number.

(Total for Question 4 is 1 mark)

Turn over

11

5. Below is a list of five numbers.

5

11

18

22

29

**From the list, write down a multiple
of 3**

(Total for Question 5 is 1 mark)

Turn over

6. Look at the diagram for Question 6 in the Diagram Booklet.

It shows a graph with information about the average monthly temperature, in $^{\circ}\text{C}$, in Amman.

- (a) For how many months was the average monthly temperature greater than 16°C ?
(1 mark)**

(continued on the next page)

Turn over

6. continued.

**(b) Write down the two months that
had the same average monthly
temperature.**

(1 mark)

_____ and

(Total for Question 6 is 2 marks)

Turn over

7. **208** bars of chocolate were sold from a shop.

$\frac{1}{4}$ of these bars of chocolate were large bars.

The rest of the bars of chocolate were small bars.

All the large bars of chocolate were sold for **£1** each.

All the small bars of chocolate were sold for **60** pence each.

(continued on the next page)

Turn over

7. continued.

Work out the total amount of money for which the 208 bars of chocolate were sold.

Give your answer in pounds.

(3 marks)

Answer space continues on the next page.

Turn over

7. continued.

£ _____

(Total for Question 7 is 3 marks)

Turn over

8. Look at the table for Question 8 in the Diagram Booklet.

Four students play a game.

The table shows the number of points each student has.

Barbara has more points than Danesh.

- (a) How many more?
(1 mark)

(continued on the next page)

Turn over

8. continued.

(b) Work out the mean number of points.

(2 marks)

(Total for Question 8 is 3 marks)

Turn over

9. Look at the diagram for Question 9 in the Diagram Booklet.

The diagram shows point **A** on the grid.

- (a) Write down the coordinates of point **A**
(1 mark)

(_____ , _____)

- (b) On the grid, mark the point (1, 4)
Label this point **B**
(1 mark)

(continued on the next page)

Turn over

9. continued.

- (c) On the grid, draw the line with
equation $y = -3$
(1 mark)**

(Total for Question 9 is 3 marks)

21

10. Here are the first three terms of a sequence.

20

16

13

(i) Write down two numbers that could be the 4th and 5th terms of this sequence.

(1 mark)

_____ , _____

(continued on the next page)

Turn over

10. continued.

**(ii) Write down the rule you used to
get your numbers.**

(1 mark)

(Total for Question 10 is 2 marks)

Turn over

- 11. Look at the diagram for Question 11 in the Diagram Booklet.**

The diagram shows a cuboid with length 8 cm, width 4 cm and height 5 cm

Work out the volume of the cuboid.

_____ **cm³**

(Total for Question 11 is 2 marks)

Turn over

**12. Look at the information for
Question 12 in the Diagram Booklet.**

It shows a ratio.

**Amol, Gemma and Harry each have a
number of sweets.**

**The number of sweets that Gemma
has is 6 times the number of sweets
that Amol has.**

**The number of sweets that Harry has
is half the number of sweets that
Gemma has.**

(continued on the next page)

12. continued.

**Write down the ratio shown in the
Diagram Booklet.**

(2 marks)

**Answer space continues on the next
page.**

Turn over

12. continued.

(Total for Question 12 is 2 marks)

Turn over

13. Look at the diagram for
Question 13(a) in the
Diagram Booklet.

ABCD is a quadrilateral.

Angle **DAB** = Angle **ABC** = 120°

Angle **BCD** = 80°

Angle **CDA** is marked **x**

(continued on the next page)

13. continued.

- (a) (i) Work out the size of angle x**
(1 mark)



(continued on the next page)

Turn over

13. (a) continued.

**(ii) Give a reason for your
answer.**

(1 mark)

(continued on the next page)

Turn over

13. continued.

**Look at the diagram for
Question 13(b) in the
Diagram Booklet.**

The diagram shows a triangle.

**The three angles are marked 80° ,
 60° and 50°**

(continued on the next page)

13. continued.

The diagram is wrong.

(b) Explain why.

(1 mark)

(Total for Question 13 is 3 marks)

Turn over

14. Look at the diagram for Question 14 in the Diagram Booklet.

You can use the graph to change between ounces and grams.

**(a) Change 850 grams to ounces.
(1 mark)**

_____ ounces

(continued on the next page)

Turn over

14. continued.

(b) Change 75 ounces to grams.

(2 marks)

_____ grams

(Total for Question 14 is 3 marks)

Turn over

15. **2.5 kg** of onions and **2 kg** of carrots
cost a total of **£2.36**
3 kg of carrots cost **£1.74**

Stuart has £2

He wants to buy 4 kg of onions.

**Does Stuart have enough money to
buy 4 kg of onions?**

**You must show how you get your
answer.**

(5 marks)

**Answer space continues on the next
two pages.**

15. continued.

Turn over

15. continued.

(Total for Question 15 is 5 marks)

Turn over

- 16. Look at the table and the diagram for Question 16 in the Diagram Booklet.**
- There are three different types of potato in a box.**

The table in the Diagram Booklet gives the number of each type of potato.

Salim draws the pie chart in the Diagram Booklet for the information in the table.

(continued on the next page)

16. continued.

Write down two different things that are wrong or misleading with the pie chart in the Diagram Booklet.

1 _____

2 _____

(Total for Question 16 is 2 marks)

Turn over

- 17. (a) Write 87 569 correct to
3 significant figures.
(1 mark)**
-

(continued on the next page)

17. continued.

(b) Work out

$$\frac{(3 \cdot 2 + 3 \cdot 7) \times 4 \cdot 9}{5 \cdot 3 - 2 \cdot 8}$$

Give your answer as a decimal.

(2 marks)

(Total for Question 17 is 3 marks)

Turn over

**18. Look at the diagram for Question 18
in the Diagram Booklet.**

You will be provided with a shape.

**Describe fully the single
transformation that maps shape **A**
onto shape **B****

(Total for Question 18 is 2 marks)

Turn over

**19. Look at the diagram for Question 19
in the Diagram Booklet.**

Carly cycles to her friend's house.

**She stays at her friend's house for a
number of minutes.**

Then she cycles home.

**In the Diagram Booklet is the travel
graph for her journey.**

(continued on the next page)

19. continued.

(a) For how many minutes did Carly stay at her friend's house?

(1 mark)

_____ minutes

(b) How far is Carly from her home at 08 50?

(1 mark)

_____ km

(continued on the next page)

Turn over

19. continued.

**(c) Work out Carly's speed, in km/h,
for the first 20 minutes of her
journey.**

(2 marks)

_____ km/h

(Total for Question 19 is 4 marks)

Turn over

**20. Look at the information for
Question 20 in the Diagram Booklet.
It shows a list of ingredients for
making 10 scones.**

Martin has

100 grams butter

1 kg self-raising flour

50 grams sugar

4 eggs

Martin wants to make 25 scones.

**He has not got enough of some of the
ingredients.**

(continued on the next page)

Turn over

20. continued.

Work out how much more of each of these ingredients he needs.

(4 marks)

Answer space continues on the next page.

Turn over

20. continued.

(Total for Question 20 is 4 marks)

Turn over

21. Make n the subject of the formula

$$p = 3n - 9$$

(Total for Question 21 is 2 marks)

Turn over

- 22. Rob has been asked to divide 120 in the ratio 3 : 5**

Here is his working.

$$120 \div 3 = 40$$

$$120 \div 5 = 24$$

Rob's working is not correct.

(continued on the next page)

22. continued.

Describe what Rob has done wrong.

(Total for Question 22 is 1 mark)

Turn over

23. 200 students chose one language to study.

Each student chose one language from French or Spanish or German.

Of the 200 students,

90 are boys and the rest of the students are girls

70 chose Spanish

60 of the 104 students who chose French are boys

18 girls chose German.

(continued on the next page)

23. continued.

**Work out how many boys chose
Spanish.**

(3 marks)

**Answer space continues on the next
page.**

Turn over

23. continued.

(Total for Question 23 is 3 marks)

Turn over

24. Look at the diagram for Question 24 in the Diagram Booklet.

You may be provided with a model.

It is NOT accurate.

Karina has 4 tanks on her tractor.

Each tank is a cylinder with diameter 80 cm and height 160 cm

The 4 tanks are to be filled completely with a mixture of fertiliser and water.

The fertiliser has to be mixed with water in the ratio 1 : 100 by volume.

Karina has 32 litres of fertiliser.

(continued on the next page)

Turn over

24. continued.

$$1 \text{ litre} = 1000 \text{ cm}^3$$

Has Karina enough fertiliser for the 4 tanks?

You must show how you get your answer.

(4 marks)

Answer space continues on the next two pages.

Turn over

24. continued.

Turn over

24. continued.

(Total for Question 24 is 4 marks)

Turn over

25. Look at the diagram for Question 25 in the Diagram Booklet.

Triangle ABC and triangle DEF are similar.

$$\mathbf{AC = 5\text{ cm}}$$

$$\mathbf{BC = 4\text{ cm}}$$

$$\mathbf{DE = 22\text{ cm}}$$

$$\mathbf{DF = 20\text{ cm}}$$

$$\mathbf{\text{Angle } ABC = \text{Angle } DEF}$$

$$\mathbf{\text{Angle } ACB = \text{Angle } DFE}$$

(continued on the next page)

Turn over

25. continued.

- (a) Work out the length of EF**
(2 marks)

_____ **cm**

(continued on the next page)

Turn over

25. continued.

(b) Work out the length of AB
(2 marks)

_____ **cm**

(Total for Question 25 is 4 marks)

Turn over

26. Look at the diagram for Question 26 in the Diagram Booklet.

One weekend the Keddie family is going to do a sports quiz and a music quiz.

The probability that the family will win the sports quiz is 0.3

The probability that the family will win the music quiz is 0.35

(a) Complete the probability tree diagram in the Diagram Booklet.

There are three spaces to fill.

(2 marks)

(continued on the next page)

Turn over

26. continued.

(b) Work out the probability that the Keddie family will win both the sports quiz and the music quiz.

(2 marks)

Answer space continues on the next page.

Turn over

26. (b) continued.

(Total for Question 26 is 4 marks)

Turn over

64

27. (a) Change 8000 cm^3 to m^3
(1 mark)

_____ m^3

- (b) Change a speed of 180 km per hour to metres per second.
(3 marks)

Answer space continues on the next page.

Turn over

27. (b) continued.

_____ metres per second

(Total for Question 27 is 4 marks)

Turn over

28. There are **30** women and **20** men at a gym.

The mean height of all **50** people is
167.6 cm

The mean height of the **20** men is
182 cm

Work out the mean height of the
30 women.

(3 marks)

Answer space continues on the next
page.

28. continued.

_____cm

(Total for Question 28 is 3 marks)

Turn over

29. (a) Write

6.75×10^{-4} as an ordinary
number.

(1 mark)

(continued on the next page)

Turn over

29. continued.

(b) Work out

$$\frac{2.56 \times 10^6 \times 4.12 \times 10^{-3}}{1.6 \times 10^{-2}}$$

Give your answer in standard form.

(2 marks)

Answer space continues on the next page.

Turn over

29. (b) continued.

(Total for Question 29 is 3 marks)

Turn over

30. $\mathbf{a} = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$

$$\mathbf{b} = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$$

$$\mathbf{c} = \begin{pmatrix} 4 \\ 1 \end{pmatrix}$$

(a) Work out $\mathbf{a} + \mathbf{b}$ as a column vector

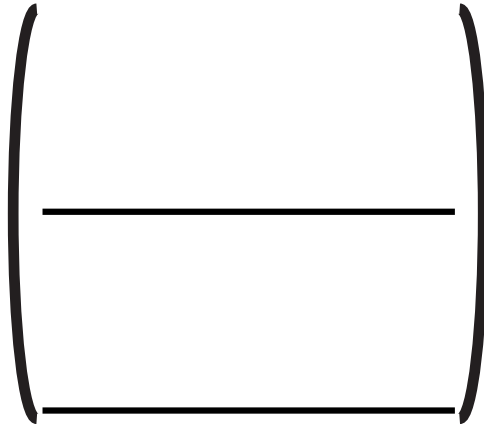
(i) $\mathbf{a} + \mathbf{b}$

(1 mark)

Answer space continues on
the next page.

Turn over

30. (a) (i) continued.




(continued on the next page)

Turn over

30. (a) continued.

(ii) $2a - c$

(2 marks)

A large empty space for writing the answer, enclosed in large parentheses. The parentheses are tall and narrow, with a horizontal line across the middle, creating a rectangular box for the answer.

(continued on the next page)

Turn over

30. continued.

**Look at the diagram for
Question 30(b) in the
Diagram Booklet.**

The vector \mathbf{d} is drawn on the grid.

**(b) From the point \mathbf{P} , draw the
vector $2\mathbf{d}$
(1 mark)**

(Total for Question 30 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER
