

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 plus your additional time allowance

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. Tracing paper may be used.**

**YOU WILL BE GIVEN**

**Diagram Booklet**

**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  $\pi$  button, take the value of  $\pi$  to be  $3 \cdot 142$  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 them.**

## **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.**

---

**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

**5**

- 1. Write 45% as a decimal.**

---

**(Total for Question 1 is 1 mark)**

---

**Turn over**

**2. Write down two factors of 35**

---

**(Total for Question 2 is 1 mark)**

---

3. What is the time **2** hours **40** minutes after **8.05 am**?

\_\_\_\_\_ am

(Total for Question 3 is 1 mark)

---

4. Work out  $\frac{1}{6}$  of 66

---

(Total for Question 4 is 1 mark)

---



5. Look at the diagram for Question 5 in the Diagram Booklet.

It shows a straight line **AB**

Mark with a cross (**X**) the midpoint of **AB**

(Total for Question 5 is 1 mark)

---

6. (a) Simplify

$$m \times n \times 4$$

(1 mark)

---

(b) Simplify

$$4y + 3 - y + 5$$

(2 marks)

---

(Total for Question 6 is 3 marks)

---

7. There are three cards in bag **A** and two cards in bag **B**

There is a letter on each card.

In bag **A**, the three cards have the letters **E**, **F** and **G** written on them.

In bag **B**, the two cards have the letters **J** and **K** written on them.

James takes a card from bag **A** and then a card from bag **B**

List all the possible outcomes.

---

---

---

---

---

(Total for Question 7 is 2 marks)

---

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

It shows information about prices.

On Monday, Sandy pays for **2** plane tickets,  
**7** nights in a hotel and **2** theme park tickets.

Show that Sandy pays more than **2500** dollars on Monday.

(Total for Question 8 is 3 marks)

---

Turn over

9. Look at the two-way table for Question 9 in the Diagram Booklet.

Vadim has 56 clocks.

The clocks are only red, only blue or only black.

32 of the clocks are plastic.

5 of the 14 blue clocks are plastic.

8 of the 12 red clocks are NOT plastic.

Use this information to complete the two-way table in the Diagram Booklet.

There are twelve spaces to fill.

(3 marks)

Space for working continues on the next page.

9. continued.

(Total for Question 9 is 3 marks)

---

**15**

- 10. Corina has £300 to spend on books.  
Each book costs £4.85**

**Work out the greatest number of books Corina can  
buy.**

---

**(Total for Question 10 is 3 marks)**

---

**Turn over**

11. (a) Write **196** minutes in hours and minutes.  
(2 marks)

\_\_\_\_\_ hours \_\_\_\_\_ minutes

(continued on the next page)



**11. continued.**

**A train travels  $X$  miles in 2 hours.**

**(b) Write down an expression, in terms of  $X$ , for the average speed of the train.**

**(1 mark)**

\_\_\_\_\_ miles per hour

**(Total for Question 11 is 3 marks)**

---

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

**It shows two places, Shelton and Trilby, on a map.**

**It has the scale: 1 cm represents 10 kilometres.**

**(a) What is the actual distance, in kilometres, from Shelton to Trilby?**

**(2 marks)**

\_\_\_\_\_ kilometres

**(continued on the next page)**

**12. continued.**

**On a scale drawing, the scale is given as 1:1200**

**(b) How many metres does 5 centimetres represent  
on this drawing?**

**(2 marks)**

\_\_\_\_\_ metres

**(Total for Question 12 is 4 marks)**

---

**13. In the Northern hemisphere the ratio of the area of land to the area of water is 2:3**

**(a) Work out what percentage of the area of the Northern hemisphere is land.**

**(2 marks)**

\_\_\_\_\_ %

**(continued on the next page)**

**13. continued.**

**20% of the area of the Southern hemisphere is land.**

**(b) Work out the ratio of the area of land to the area of water in the Southern hemisphere.**

**(2 marks)**

---

**(Total for Question 13 is 4 marks)**

---

**Turn over**

14. A stadium cost £600 million.

$\frac{13}{15}$  of this cost was for the building.

The rest of the cost was for the land.

Work out the cost of the land.

£\_\_\_\_\_ million

(Total for Question 14 is 3 marks)

---

Turn over

**15. Jenna measures all the angles around a point.**

**Her results are  $23^\circ$ ,  $145^\circ$ ,  $23^\circ$  and  $69^\circ$**

**Explain why these results cannot be true.**

---

---

---

---

---

**(Total for Question 15 is 1 mark)**

---

16. Look at the diagram for Question 16 in the Diagram Booklet.

It shows two right-angled triangles on a grid.

The triangles are labelled **BAC** and **DAE**

Point **A** for each of the triangles is in the same position on the grid.

Angle **BAC** and angle **DAE** are right angles.

Describe fully the single transformation that maps triangle **BAC** onto triangle **DAE**

---

---

---

---

---

(Total for Question 16 is 2 marks)

---



17. (a) Expand  
 $y(y + 5)$   
(1 mark)
- 

- (b) Factorise  
 $4m - 6$   
(1 mark)
- 

(continued on the next page)

17. continued.

(c) Solve

$$2(5x - 4) = 21$$

(3 marks)

**x** = \_\_\_\_\_

(continued on the next page)

Turn over

17. continued.

(d) Simplify

$$4p^2q \times 5pq^3$$

(2 marks)

---

(Total for Question 17 is 7 marks)

---

18. Change  $1 \text{ m}^2$  into  $\text{cm}^2$

\_\_\_\_\_  $\text{cm}^2$

(Total for Question 18 is 1 mark)

---

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

It shows two squares, **ABCD** and **EFGH**

The square **EFGH** is shaded.

**EFGH** is inside **ABCD**

**AE = BF = CG = DH = 3 cm**

**EB = FC = GD = HA = 5 cm**

All the marked angles are right angles.

Work out the area of the square shown shaded in the diagram.

(4 marks)

Answer space continues on the next page.

19. continued.

---

(Total for Question 19 is 4 marks)

---

**20. Look at the diagram for Question 20 in the Diagram Booklet.**

**It shows an incomplete stem and leaf diagram.**

**Below are the heights, in centimetres, of 15 plants.**

<b>15</b>	<b>20</b>	<b>25</b>	<b>33</b>	<b>17</b>
<b>22</b>	<b>25</b>	<b>18</b>	<b>22</b>	<b>19</b>
<b>32</b>	<b>35</b>	<b>24</b>	<b>28</b>	<b>19</b>

**Draw a stem and leaf diagram for these heights in the Diagram Booklet.**

**(Total for Question 20 is 3 marks)**

---

**21. Look at the diagram for Question 21 in the Diagram Booklet.**

**It is a scatter graph which shows information about the volume of traffic and the carbon monoxide level at a point on a road each day for 22 days.**

**One point is an outlier.**

**(a) Write down the coordinates of this point.**

**(1 mark)**

**( \_\_\_\_\_ , \_\_\_\_\_ )**

**(continued on the next page)**



**21. continued.**

**For another day, 370 cars pass the point on the road.**

**(b) Estimate the carbon monoxide level for this day.**

**(2 marks)**

\_\_\_\_\_  $\text{mg/m}^3$

**(continued on the next page)**

**21. continued.**

**Alfie says,**

**“Because there is an outlier, there is no correlation.”**

**(c) Is Alfie correct?**

**You must give a reason for your answer.**

**(1 mark)**

---

---

---

---

---

**(Total for Question 21 is 4 marks)**

---

- 22. Natalie makes potato cakes in a restaurant.  
She mixes potato, cheese and onion so that**

**weight of potato : weight of cheese : weight of onion  
= 9 : 2 : 1**

**Natalie needs to make 6000 grams of potato cakes.  
Cheese costs £2.25 for 175 grams.**

**Work out the cost of the cheese needed to make  
6000 grams of potato cakes.**

**(4 marks)**

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

22. continued.

Turn over

22. continued.

£ \_\_\_\_\_

(Total for Question 22 is 4 marks)

---

Turn over

23. (a) Write

$4.5 \times 10^5$  as an ordinary number.

(1 mark)

---

(b) Write  $0.007$  in standard form.

(1 mark)

---

(continued on the next page)

**23. continued.**

**(c) Work out**

$$4.2 \times 10^3 + 5.3 \times 10^2$$

**Give your answer in standard form.**

**(2 marks)**

---

**(Total for Question 23 is 4 marks)**

---

**Turn over**

**24. A water tank is empty.**

**Anil needs to fill the tank with 2400 litres of water.**

**Company A supplies water at a rate of 8 litres in 1 minute 40 seconds.**

**Company B supplies water at a rate of 2.2 gallons per minute.**

**1 gallon = 4.54 litres**

**Company A would take more time to fill the tank than Company B would take to fill the tank.**

**How much more time?**

**Give your answer in minutes correct to the nearest minute.**

**(4 marks)**

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



**24. continued.**

\_\_\_\_\_ minutes

**(Total for Question 24 is 4 marks)**

---

**Turn over**

**25. The first four terms of a Fibonacci sequence are**

**$n$              $2n$              $3n$              $5n$**

**The sum of the first five terms of this sequence is  
228**

**Work out the value of  $n$**

**(3 marks)**

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

**25. continued.**

---

**(Total for Question 25 is 3 marks)**

---

**Turn over**

**26. Look at the table for Question 26 in the Diagram Booklet.**

**In a bag there are only red counters, blue counters, green counters and pink counters.**

**A counter is going to be taken at random from the bag.**

**The table in the Diagram Booklet shows the probabilities of taking a red counter or a blue counter.**

**The probability of taking a green counter is  $0.2$  more than the probability of taking a pink counter.**

**(a) Complete the table in the Diagram Booklet.**

**There are two spaces to fill.**

**(2 marks)**

**(continued on the next page)**

**Turn over**

**26. continued.**

**There are 18 blue counters in the bag.**

**(b) Work out the total number of counters in the bag.**

**(2 marks)**

---

**(Total for Question 26 is 4 marks)**

---

**27. Look at the diagram for Question 27 in the Diagram Booklet.**

**It shows a sector  $OPQR$  of a circle, centre  $O$  and radius  $8\text{ cm}$**

**$OP = OR = 8\text{ cm}$**

**The marked angle is a right angle.**

**$OPR$  is a triangle.**

**Work out the area of the shaded segment  $PQR$**

**Give your answer correct to 3 significant figures.**

**(4 marks)**

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

**27. continued.**

\_\_\_\_\_  $\text{cm}^2$

**(Total for Question 27 is 4 marks)**

---

**Turn over**

**28. Look at the diagram for Question 28 in the Diagram Booklet.**

**It shows a set of axes.**

**Sketch the graph of  $y = \frac{1}{x}$  on the axes in the Diagram Booklet.**

**(Total for Question 28 is 2 marks)**

---

**TOTAL FOR PAPER IS 80 MARKS**

**END OF PAPER**

---