

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

Total Marks

# **Mathematics**

## **Paper 3**

### **(Calculator)**

### **Foundation Tier**

**Monday 8 June 2020 – Morning**

**Time: 1 hour 30 minutes plus your additional time allowance.**

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

<b>Surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

**YOU MUST HAVE**

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

**YOU WILL BE GIVEN**

**Diagram Book**

**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.**

## **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.**

**You may be provided with models for Question 22 and  
Question 29  
They are NOT accurate.**

**There may be spare copies of some diagrams.**

## **ADVICE**

**Read each question carefully before you start to  
answer it.**

**Keep an eye on the time.**

**Try to answer every question.**

**Check your answers if you have time at the end.**

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**Answer ALL questions.**

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

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

- 1. Change 300 centimetres into metres.**

\_\_\_\_\_ metres

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

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2. Work out

$$\frac{1}{3} \text{ of } 24$$

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(Total for Question 2 is 1 mark)

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3. Write  
40% as a fraction.

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(Total for Question 3 is 1 mark)

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4. Work out  
 $2 \cdot 5^2$

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(Total for Question 4 is 1 mark)

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5. Write the following seven numbers in order of size.  
Start with the smallest number.

1      -4      0      7      -6      -3      2

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(Total for Question 5 is 1 mark)

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

It is a graph which shows some information about car production in the UK over eight years.

- (a) For how many of these years was car production more than 1.4 million?  
(1 mark)

\_\_\_\_\_

- (b) In which two years was car production the same?  
(1 mark)

\_\_\_\_\_ , \_\_\_\_\_

(Total for Question 6 is 2 marks)

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7. Look at the diagram for Question 7 in the Diagram Book.

It shows a shape.

What fraction of the shape is shaded?

Give your answer in its simplest form.

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(Total for Question 7 is 2 marks)

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8. Karim buys 200 tiles.

The tiles are sold in boxes.

There are 25 tiles in each box.

Each box of tiles costs £9.75

Work out the total cost of the boxes of tiles Karim buys.

(3 marks)

Answer space continues on the next page.

8. continued.

£ \_\_\_\_\_

(Total for Question 8 is 3 marks)

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9. (a) Work out the value of

$$\frac{300}{2 \times 5}$$

(1 mark)

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(continued on the next page)

**9. continued.**

**(b) Work out the value of**

$$(6 - 2 \cdot 5)(8 + 4)$$

**(1 mark)**

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**(c) Write down the reciprocal of 20**

**(1 mark)**

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**(Total for Question 9 is 3 marks)**

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**Turn over**

**10. Look at the diagram for Question 10 in the Diagram Book.**

**It is a graph which shows information about the time, in minutes, a liquid has been cooling and the temperature of the liquid in  $^{\circ}\text{C}$**

- (a) What is the temperature of the liquid at time 2 minutes?  
(1 mark)**

\_\_\_\_\_  $^{\circ}\text{C}$

**Pam recorded the time when the liquid had a temperature of  $50^{\circ}\text{C}$**

- (b) Write down this time.  
(1 mark)**

\_\_\_\_\_ minutes

**(continued on the next page)**



**10. continued.**

**Pam says that the temperature of the liquid drops more in the first 3 minutes of cooling than it does between time 9 minutes and time 12 minutes.**

**(c) Is Pam correct?**

**Give a reason for your answer.**

**(1 mark)**

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

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11. Look at the diagram for Question 11 in the Diagram Book.

**PQRS** is a quadrilateral.

**PST** is a straight line.

Angle **PQR** =  $130^\circ$

Angle **QRS** =  $65^\circ$

Angle **SPQ** =  $95^\circ$

Angle **RST** =  $y^\circ$

Find the value of **y**

(3 marks)

Answer space continues on the next page.

11. continued.

$y =$  \_\_\_\_\_

(Total for Question 11 is 3 marks)

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**12. Here are the first five terms of a number sequence.**

**45          40          35          30          25**

**(a) (i) Write down the next two terms of this sequence.**

**(1 mark)**

\_\_\_\_\_, \_\_\_\_\_

**(continued on the next page)**

**12. (a) continued.**

**Remember:**

**Here are the first five terms of a number sequence.**

**45      40      35      30      25**

**A term of this sequence is  $-5$**

**(ii) Which term?**

**(1 mark)**

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**(continued on the next page)**

**12. continued.**

The  $n$ th term of a different sequence is given by the expression

$$4n + 3$$

**(b) Find the 9th term of this sequence.**

**(1 mark)**

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**(Total for Question 12 is 3 marks)**

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**13. Look at the diagram for Question 13 in the Diagram Book.**

**It shows a shape.**

**Four sides of the shape are labelled 4 cm, 5 cm, 10 cm and 7 cm**

**All five marked angles are right angles.**

**Work out the perimeter of this shape.**

\_\_\_\_\_ cm

**(Total for Question 13 is 2 marks)**

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14. (a) Simplify

$$3w + 5y + 2w - 4y$$

(2 marks)

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(continued on the next page)



14. continued.

(b) Solve

$$5p + 7 = 22$$

(2 marks)

$p =$  \_\_\_\_\_

(Total for Question 14 is 4 marks)

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**15. Look at the information for Question 15 in the Diagram Book.**

**It shows the costs of the same type of batteries in two shops.**

**Harry needs to buy at least 30 batteries.**

**He assumes that he has to buy batteries in whole packs.**

**Harry wants to buy the batteries as cheaply as possible from the same shop.**

**(a) Which shop should he buy the batteries from, shop **A** or shop **B**?**

**You must show all your working.**

**(4 marks)**

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

15. (a) continued.

(continued on the next page)

**15. continued.**

**Harry's assumption is wrong.**

**He can buy single batteries for 40 pence each in shop A and for 45 pence each in shop B**

**(b) Does this affect which of these two shops Harry should buy the batteries from?**

**Give a reason for your answer.**

**(1 mark)**

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**(Total for Question 15 is 5 marks)**

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16. There are only **5** blue cards, **2** green cards and **4** red cards in a pack.

Isabella is going to take at random one card from the pack.

- (a) Write down the probability that Isabella will take a blue card.

(2 marks)

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(continued on the next page)

16. continued.

Ken is going to throw a biased dice once.

The probability that the dice will land on six is  $0.3$

(b) What is the probability that the dice will NOT land on six?

(1 mark)

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(Total for Question 16 is 3 marks)

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**17. Look at the diagram for Question 17 in the Diagram Book.**

**Draw accurately an isosceles triangle with sides of length 8 cm, 6 cm and 6 cm**

**One side of the triangle has been drawn for you in the Diagram Book.**

**(Total for Question 17 is 2 marks)**

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

**It shows a graph that can be used to change between US dollars (\$) and British pounds (£)**

**Rosie bought a ring in the USA.**

**She paid 345 US dollars.**

**Work out in pounds the amount Rosie paid for the ring.**

**(3 marks)**

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



18. continued.

£ \_\_\_\_\_

(Total for Question 18 is 3 marks)

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**19. Look at the information for Question 19 in the Diagram Book.**

**It shows the four types of sandwiches sold in a cafe last week.**

**56 tuna sandwiches were sold.**

**This was 40% of the total number of sandwiches sold.**

**(a) Work out the total number of sandwiches sold.  
(2 marks)**

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**(continued on the next page)**

**Turn over**

**19. continued.**

**Of the 56 tuna sandwiches sold, 18 were sold on Friday.**

**(b) Write 18 as a percentage of 56**

**Give your answer correct to the nearest whole number.**

**(2 marks)**

\_\_\_\_\_ %

**(Total for Question 19 is 4 marks)**

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20. Akhtar, Ben and Carl each have some money.

Akhtar has £65

Ben has £100

Carl has three £5 notes, one £20 note and some £10 notes.

The mean amount of money per person is £80

How many £10 notes does Carl have?

(4 marks)

Answer space continues on the next page.

20. continued.

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(Total for Question 20 is 4 marks)

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**21. Malik is going to throw a fair coin 50 times.**

- (a) Write down an estimate for the number of times the coin will land on heads.**

**(1 mark)**

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**(continued on the next page)**

**21. continued.**

**Paula and Simon are trying to find out if a different coin is biased.**

**Paula throws this coin 10 times.**

**She records the number of times the coin lands on heads.**

**Simon throws the same coin 100 times.**

**He records the number of times the coin lands on heads.**

**(b) Whose results will be more useful in deciding if the coin is biased?**

**Give a reason for your answer.**

**(1 mark)**

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**(Total for Question 21 is 2 marks)**

**Turn over**

**22. Look at the diagrams for Question 22 in the Diagram Book.**

**You may be provided with a model.**

**Diagram 1 and the model show a solid made from a square-based pyramid and a cube.**

**Each edge of the solid has length 6 cm**

**Diagram 2 shows four shapes labelled A, B, C and D on a grid.**

**One square length on the grid represents 1 cm on the solid.**

**Which shape A, B, C or D represents the plan of the solid?**

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**(Total for Question 22 is 2 marks)**

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23. (a) Simplify

$$n^3 \times n^5$$

(1 mark)

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(continued on the next page)

23. continued.

(b) Simplify

$$\frac{p^3 q^4}{p^2 q}$$

(2 marks)

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(continued on the next page)

23. continued.

(c) Solve

$$\frac{5x}{2} > 7$$

(2 marks)

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(Total for Question 23 is 5 marks)

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- 24. Andy cycles a distance of 30 km at an average speed of 24 km/h**  
**He then runs a distance of 12 km at an average speed of 8 km/h**

**Work out the total time Andy takes.**

**Give your answer in hours and minutes.**

**(3 marks)**

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

24. continued.

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

(Total for Question 24 is 3 marks)

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25. A number,  $m$ , is rounded to 1 decimal place.  
The result is  $9.4$

Complete the error interval for  $m$

$$\underline{\hspace{2cm}} \leq m < \underline{\hspace{2cm}}$$

(Total for Question 25 is 2 marks)

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26. Maisie knows that she needs **3 kg** of grass seed to make a rectangular lawn **5 metres** by **9 metres**.

Grass seed is sold in **2 kg** boxes.

Maisie wants to make a rectangular lawn **10 metres** by **14 metres**.

She has **5** boxes of grass seed.

- (a) Has Maisie got enough grass seed to make a lawn **10 metres** by **14 metres**?

You must show all your working.

(4 marks)

Answer space continues on the next page.

**26. (a) continued.**

**(continued on the next page)**



**26. continued.**

**Maisie opens the 5 boxes of grass seed.**

**She finds that 4 of the boxes contain 2 kg of grass seed.**

**The other box contains 1 kg of grass seed.**

**(b) Does this affect whether Maisie has enough grass seed to make her lawn?**

**Give a reason for your answer.**

**(1 mark)**

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**(Total for Question 26 is 5 marks)**

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**27. Look at the diagrams for Question 27 in the Diagram Book.**

**They show two spinners, labelled **A** and **B** and a probability tree diagram.**

**Amanda has two fair 3–sided spinners.**

**Amanda spins each spinner once.**

**(a) Complete the probability tree diagram in the Diagram Book.**

**There are six spaces to fill.**

**(2 marks)**

**(continued on the next page)**

**27. continued.**

- (b) Work out the probability that Spinner A lands on 2 and Spinner B does NOT land on 2  
(2 marks)**

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

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28. Look at the diagram for Question 28(a) in the Diagram Book.

It shows the graphs of

$$5x - 9y = -46 \text{ and}$$

$$y = -2x$$

(a) Use these graphs to solve the simultaneous equations

$$5x - 9y = -46$$

$$y = -2x$$

(1 mark)

$$x = \underline{\hspace{4cm}}$$

$$y = \underline{\hspace{4cm}}$$

(continued on the next page)

**28. continued.**

**(b) Look at the diagram for Question 28(b) in the Diagram Book.**

It shows the graph of  $y = x^2 - 4x + 2$

**Use this graph to find estimates for the solutions of the quadratic equation**

$$x^2 - 4x + 2 = 0$$

**(2 marks)**

**(Total for Question 28 is 3 marks)**

**29. Look at Diagram 1 and Diagram 2 for Question 29 in the Diagram Book.**

**You may be provided with a model.**

**Diagram 1 and the model show a solid triangular prism.**

**Diagram 2 shows one of the triangular faces.**

**The prism is made from wood with a density of  $0.8 \text{ g/cm}^3$**

**Work out the mass of this prism.**

**(3 marks)**

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

29. continued.

\_\_\_\_\_ grams

(Total for Question 29 is 3 marks)

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Turn over

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**TOTAL FOR PAPER IS 80 MARKS**

**END OF PAPER**

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