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.

Surname					
Other names					
Centre Number					
Candidate Number					

Y62276A

Pearson

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 π button, take the value of π to be 3·142 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.

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)

2. Work out

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

(Total for Question 2 is 1 mark)

3. Write

40% as a fraction.

_____

(Total for Question 3 is 1 mark)

4. Work out

$2 \cdot 5^2$

(Total for Question 4 is 1 mark)

5. Write the following seven numbers in order of size.

Start with the smallest number.

1 −4 0 7 −6 −3 2

_____

_____

(Total for Question 5 is 1 mark)

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)

(continued on the next page)

6. continued.

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

(1 mark)

_____ , _____

(Total for Question 6 is 2 marks)

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.

_____

(Total for Question 7 is 2 marks)

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)

9. (a) Work out the value of

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

(1 mark)

(continued on the next page)

9. continued.

(b) Work out the value of

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

(1 mark)

(continued on the next page)

9. continued.

(c) Write down the reciprocal of 20

(1 mark)

(Total for Question 9 is 3 marks)

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 °C

(a) What is the temperature of the liquid at time 2 minutes?

(1 mark)

_____ °C

(continued on the next page)

10. continued.

Pam recorded the time when the liquid had a temperature of **50°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)

(Total for Question 10 is 3 marks)

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

PQRS is a quadrilateral.

PST is a straight line.

Angle **PQR = 130°**

Angle **QRS = 65°**

Angle **SPQ = 95°**

Angle **RST = y°**

Find the value of **y**

(3 marks)

Answer space continues on the next page.

11. continued.

$y =$ _____

(Total for Question 11 is 3 marks)

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)

Answer space continues on the next page.

12. (a) (ii) continued.

(continued on the next page)

12. continued.

The nth term of a different sequence is given by the expression

$$4n + 3$$

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

(1 mark)

(Total for Question 12 is 3 marks)

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.
(2 marks)

Answer space continues on the next page.

13. continued.

_____ cm

(Total for Question 13 is 2 marks)

14. (a) Simplify

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

(2 marks)

(continued on the next page)

14. continued.

(b) Solve

$$5p + 7 = 22$$

(2 marks)

$p =$ _____

(Total for Question 14 is 4 marks)

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.

(continued on the next page)

15. continued.

(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)

Answer lines continue on the next page.

15. (b) continued.

(Total for Question 15 is 5 marks)

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)

(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 $0 \cdot 3$

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

(1 mark)

(Total for Question 16 is 3 marks)

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)

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)
Answer space continues on the next page.

19. (a) continued.

(continued on the next page)

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)

Answer space continues on the next page.

19. (b) continued.

_____ %

(Total for Question 19 is 4 marks)

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 is on the next two pages.

20. continued.

20. continued.

(Total for Question 20 is 4 marks)

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)

(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.

(continued on the next page)

21. continued.

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

Give a reason for your answer.

(1 mark)

(Total for Question 21 is 2 marks)

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.

(continued on the next page)

22. continued.

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

(Total for Question 22 is 2 marks)

23. (a) Simplify

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

(1 mark)

(continued on the next page)

23. continued.

(b) Simplify

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

(2 marks)

(continued on the next page)

23. continued.

(c) Solve

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

(2 marks)

(Total for Question 23 is 5 marks)

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 two pages.

24. continued.

24. continued.

_____ hours _____ minutes

(Total for Question 24 is 3 marks)

25. A number, m, is rounded to 1 decimal place.

The result is $9 \cdot 4$

Complete the error interval for m

_____ $\leq m <$ _____

(Total for Question 25 is 2 marks)

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 is on the next two pages.

26. (a) continued.

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.

(continued on the next page)

26. continued.

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

Give a reason for your answer.

(1 mark)

(Total for Question 26 is 5 marks)

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)

Answer space continues on the next page.

27. (b) continued.

(Total for Question 27 is 4 marks)

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

It shows the graphs of

$5x - 9y = -46$ and

$y = -2x$

(a) Use these graphs to solve the simultaneous equations

$$5x - 9y = -46$$
$$y = -2x$$

(1 mark)

Answer space is on the next page.

28. (a) continued.

$x =$ _____

$y =$ _____

(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 $0 \cdot 8$ g/cm^3

Work out the mass of this prism.
(3 marks)
Answer space continues on the next two pages.

29. continued.

29. continued.

_____ **grams**

(Total for Question 29 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER