Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number	Candidate Number

Thursday 6 June 2019

Morning (Time: 1 hour 30 minutes) | Paper Reference **1MA1/2F**

Mathematics

Paper 2 (Calculator)
Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *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.*

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.

Turn over ▶

P54227A

6/6/1/1/1/1/1/

P 5 4 2 2 7 A 0 1 2 0

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write 0.75 as a fraction.

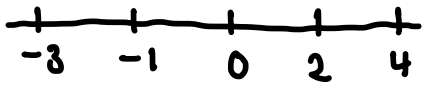
$\frac{75}{100} \overset{\div 25}{=} \frac{3}{4}$

$\frac{3}{4}$

(Total for Question 1 is 1 mark)

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

–3 4 0 –1 2



-3 -1 0 2 4

(Total for Question 2 is 1 mark)

3 Write down two factors of 15

15
1 15
3 5

1 , 15

(Total for Question 3 is 1 mark)

4 Change 1756 grams to kilograms.

1000g = 1kg
÷1000

1756 ÷ 1000 = 1.756

1.756 kg

(Total for Question 4 is 1 mark)

5 Write the number two million in figures.

digits

2000000

(Total for Question 5 is 1 mark)

6 Dave goes into a cafe and buys 2 cups of coffee and a piece of cake.

Each cup of coffee costs £2.75
The cake costs £2.90

Dave pays with a £10 note.

He thinks he will get more than £1.50 in change.

Is Dave correct?
You must show how you get your answer.

2 x 2.75 = £5.50 coffee

5.50 + 2.90 = £8.40 total

£10 - £8.40 = £1.60

£1.60 > £1.50

Dave is correct

(Total for Question 6 is 3 marks)

7 There are y boats on a lake.
There are 7 people in each boat.

Write an expression, in terms of y, for the total number of people in the boats.

1 boat = 7 people

2 boats = 2 × 7 = 14 people

y × 7 = 7y

7y

(Total for Question 7 is 1 mark)

8 (a) Simplify $a \times b \times 7$

7ab OR 7ba

(1)

(b) Simplify $y \times y \times y$

y^3

(1)

(c) Simplify fully $\dfrac{\cancel{e} \times \cancel{e} \times e \times \cancel{f}}{\cancel{e} \times \cancel{e} \times f \times \cancel{f}}$

$\frac{e}{f}$

(2)

(Total for Question 8 is 4 marks)

9 The pictogram shows information about the number of vinyl records sold in a shop on Monday and on Tuesday.

Monday	8 8 8 = 24
Tuesday	8 8 2 ($\frac{1}{4}$ of 8 = 8 ÷ 4 = 2)
Wednesday	
Thursday	

Key:
○ represents 8 vinyl records

(a) Write down the number of vinyl records sold

(i) on Monday,

24

(1)

(ii) on Tuesday.

8 + 8 + 2 = 18

18

(1)

On Wednesday and Thursday a total of 36 vinyl records were sold.
The number of records sold on Thursday was 8 times the number of records sold on Wednesday.

(b) Use this information to complete the pictogram.

Wed = x
Thu = 8 × x = 8x
} 36

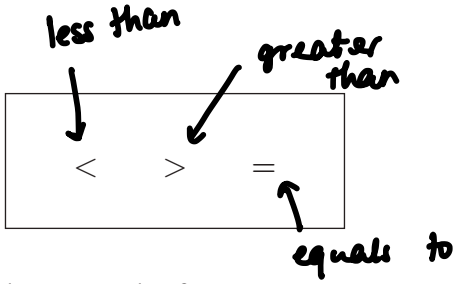
x + 8x = 36
9x = 36
÷9 ÷9
x = 4

Wed = 4
Thu = 8 × 4 = 32

(3)

(Total for Question 9 is 5 marks)

10 Here are three symbols.



Write one of these symbols in each box to make four true statements.

14 [<] 21

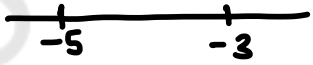
$4 + 7$ [=] $103 - 92$

$4 + 7 = 11$ $103 - 92 = 11$

2^2 [=] 2×2

$2^2 = 2 \times 2 = 4$ $2 \times 2 = 4$

-3 [>] -5



(Total for Question 10 is 2 marks)

11 $P = 7r + 3q$

Work out the value of P when $r = 5$ and $q = -4$

$P = 7(5) + 3(-4)$

$= 35 + -12$

$= 35 - 12$

$= 23$

23

(Total for Question 11 is 2 marks)

12 Here is part of a train timetable.

Brighton	07 22	07 29	07 32
London	09 00	08 32	08 48

Graham gets to the station in Brighton at 07 15

(a) Work out how many minutes he has to wait until 07 22

07 15 07:20 07 22

+5m +2m = 7m

7 minutes

(1)

(b) Work out how long it will take the 07 22 train to get to London.

07 22 8:00 9:00

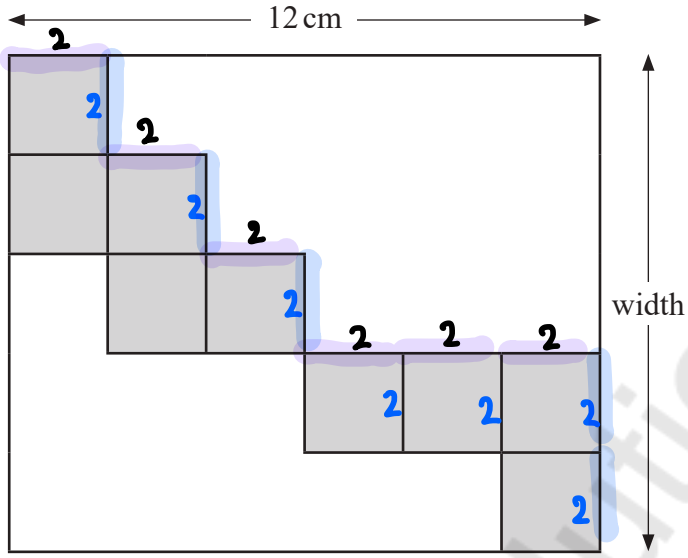
+38m +1h

1 hour 38 minutes

(2)

(Total for Question 12 is 3 marks)

13 The diagram shows nine identical squares inside a rectangle.



The length of the rectangle is 12 cm.

Work out the width of the rectangle.

12 cm ÷ 6 squares = 2 cm side length

5 squares × 2 cm = 10 cm width

10 cm

(Total for Question 13 is 3 marks)

14 Write the ratio 4.5 : 2.25 in the form $n : 1$

$\div 2.25 \left(4.5 : 2.25 \right) \div 2.25$

$2 : 1$

2 : 1

(Total for Question 14 is 1 mark)

15 A garden is in the shape of a rectangle 90 m by 60 m.

Flowers are grown in 40% of the garden.
The rest of the garden is grass.

Work out the area of the garden that is grass.

$A = l \times w$
$= 90 \times 60$
$= 5400 \text{ m}^2$

Flower = 40%
Grass = 100 − 40 = 60%

60% of 5400
$\div 100$
$0.6 \times 5400 = 3240 \text{ m}^2$

3240 m²

(Total for Question 15 is 4 marks)

16 Four biased coins, A, B, C and D are thrown.

The probability that each coin will land on Heads is shown in the table.

Coin	Probability
A	0.33
B	0.033
C	$\frac{1}{3}$ = 0.333...
D	30% = 0.3

(a) (i) Which coin is least likely to land on Heads?

is lowest probability

B

(1)

(ii) Which coin is most likely to land on Heads?

C

(1)

Julie says,

"The probability that coin C will land on Heads is the same as the probability that coin C will land on Tails."

(b) Is she correct?
Give a reason for your answer.

$P(\text{Tails}) = 1 - \frac{1}{3} = \frac{2}{3}$

$\frac{2}{3} \neq \frac{1}{3}$ so Julie is incorrect.

(1)

Coin B is going to be thrown 4000 times.

(c) Work out an estimate for the number of times coin B will land on Heads.

$0.033 \times 4000 = 132$

132

(2)

(Total for Question 16 is 5 marks)

17 There are 84 calories in 100 g of banana.
There are 87 calories in 100 g of yogurt.

Priti has 60 g of banana and 150 g of yogurt for breakfast.

Work out the total number of calories in this breakfast.

Banana

÷10 (84 cal = 100g) ÷10

(8.4 cal = 10g)

x6 (50.4 cal = 60g) x6

Yogurt

÷10 (87 cal = 100g) ÷10

(8.7 cal = 10g)

x1.5 (130.5 cal = 150g) x15

50.4 + 130.5 = 180.9 calories

180.9

(Total for Question 17 is 4 marks)

18 Machine A and machine B both make car parts.

Machine A makes 6 parts every 10 minutes.
Machine B makes 13 parts every 15 minutes.

1h = 60m
×12 ↓ ↓ ×12
12h = 720m

On Monday
machine A makes parts for 12 hours = 720 minutes
machine B makes parts for 10 hours = 600 minutes

1h = 60m
×10 ↓ ↓ ×10
10h = 600m

Work out the total number of parts made by the two machines on Monday.

A

720 ÷ 10 = 72

72 × 6 = 432 parts in 12h

B

600 ÷ 15 = 40

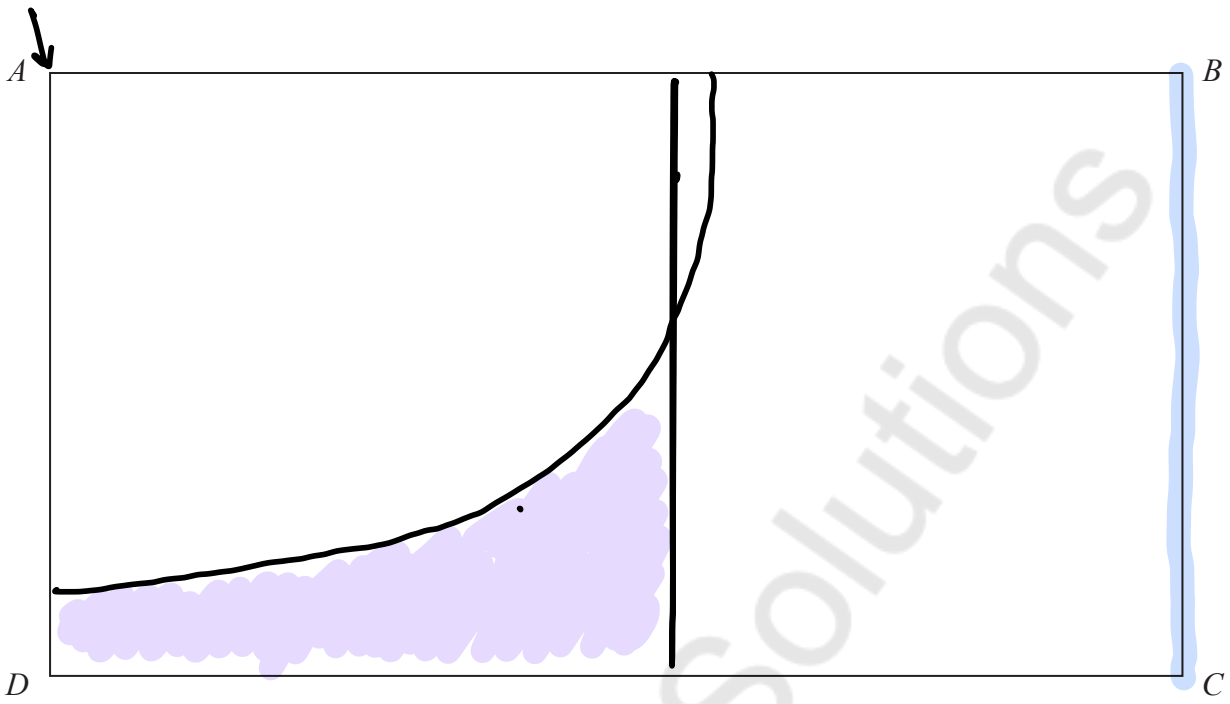
40 × 13 = 520 parts in 10 h

432 + 520 = 952 parts

952

(Total for Question 18 is 4 marks)

19 Here is a plan of a kitchen drawn to a scale of 1 : 30



Scale 1:30

×6 (1 : 30 / 6 : 180) ×6 ×5 (1 : 30 / 5 : 150) ×5

Sam is going to put a small table in the kitchen.

The table has to be 6cm
more than 180 cm from A
more than 150 cm from BC 5cm

Show, by shading on the diagram, the region where Sam can put the table.

(Total for Question 19 is 4 marks)

20 (a) Solve $14n > 11n + 6$

$14n > 11n + 6$

$-11n \quad -11n$

$3n > 6$

$\div 3 \qquad \div 3$

$n > 2$

$n > 2$

(2)

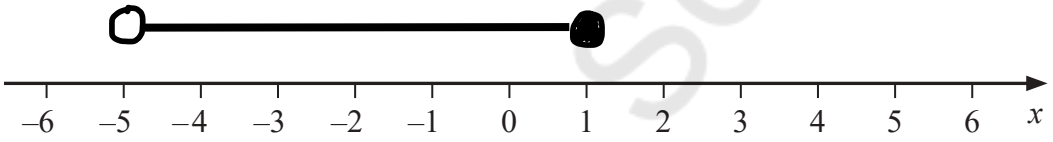
(b) On the number line below, show the set of values of x for which $-2 < x + 3 \leqslant 4$

$< \quad > \quad \circ$

$\leqslant \quad \geqslant \quad \bullet$

$-3 \quad -3 \quad -3$

$-5 < x \leqslant 1$



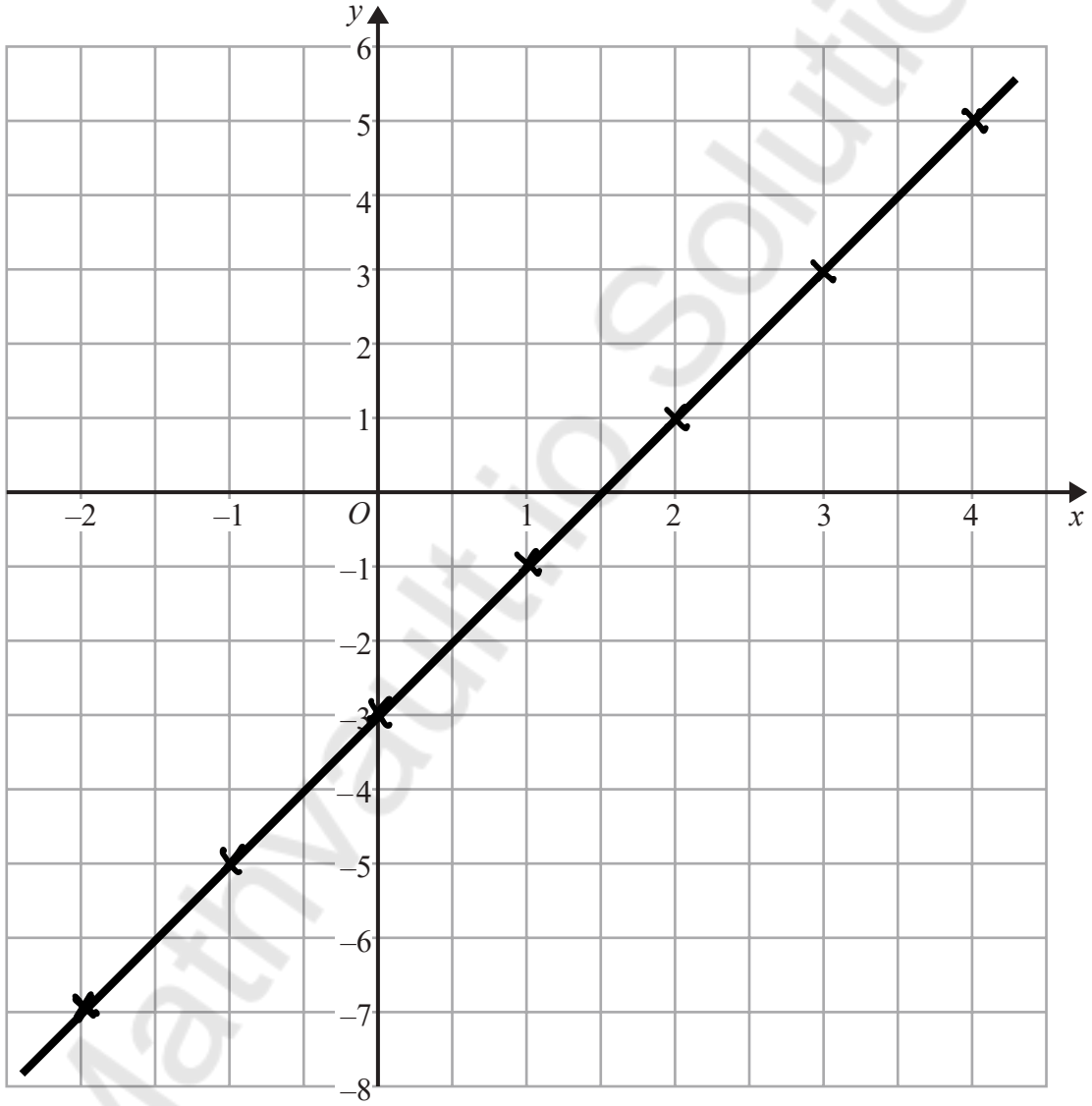
(3)

(Total for Question 20 is 5 marks)

21 On the grid below, draw the graph of $y = 2x - 3$ for values of x from -2 to 4

x	-2	-1	0	1	2	3	4
y	-7	-5	-3	-1	1	3	5

$2(-2)-3$ $2(-1)-3$ $2(0)-3$ $2(1)-3$



(Total for Question 21 is 3 marks)

22 Hannah is planning a day trip for 195 students.

She asks a sample of 30 students where they want to go.
Each student chooses one place.

The table shows information about her results.

Place	Number of students
Theme Park	10
Theatre	5
Sports Centre	8
Seaside	7

(i) Work out how many of the 195 students you think will want to go to the Theme Park.

$\frac{10}{30} = \frac{1}{3}$

$\frac{1}{3}$ of 195 $= \frac{1}{3} \times 195 = 65$

65

(2)

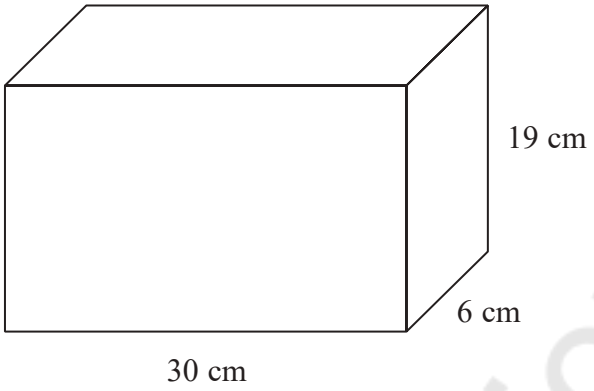
(ii) State any assumption you made **and** explain how this may affect your answer.

Random sample so our could be different.

(1)

(Total for Question 22 is 3 marks)

23 A container is in the shape of a cuboid.



The container is $\frac{2}{3}$ full of water.

A cup holds 275 m*l* of water.

What is the greatest number of cups that can be completely filled with water from the container?

$V = l \times w \times h$

$= 30 \times 6 \times 19$

$= 3420 \text{ cm}^3$

$\frac{2}{3} \times 3420 = 2280 \text{ cm}^3$ of water

$= 2280 \text{ ml}$ of water

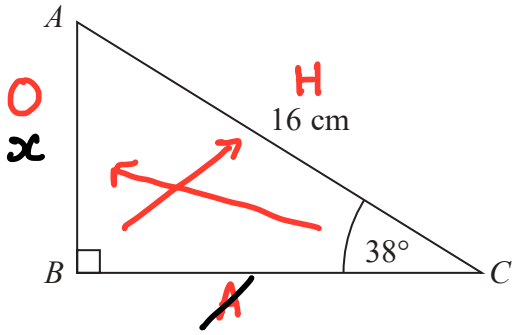
$2280 \div 275 = 8.290\ldots$ cups

$= 8$ cups completely filled

8

(Total for Question 23 is 4 marks)

24 ABC is a right-angled triangle.



Calculate the length of AB.
Give your answer correct to 2 decimal places.

$\sin\theta = \frac{O}{H}$ $\cos\theta = \frac{A}{H}$ $\tan\theta = \frac{O}{A}$

$\sin(38) = \frac{x}{16}$

$\times 16 \quad \times 16$

$16 \times \sin(38) = x$

$x = 9.8505\ldots$

9.85 cm

(Total for Question 24 is 2 marks)

25 Sally used her calculator to work out the value of a number y.

The answer on her calculator display began

8.3

Complete the error interval for y.

8.3 to 8.4

8.3 $\leqslant y <$ 8.4

(Total for Question 25 is 2 marks)

26 £360 is shared between Abby, Ben, Chloe and Denesh.

The ratio of the amount Abby gets to the amount Ben gets is 2 : 7

Chloe and Denesh each get 1.5 times the amount Abby gets.

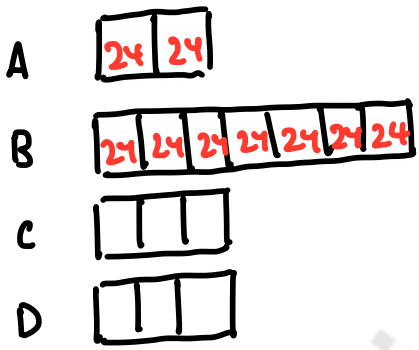
Work out the amount of money that Ben gets.

A : B
2 : 7

C
1.5 × 2 = 3

D
1.5 × 2 = 3

A : B : C : D
2 : 7 : 3 : 3



15 parts.

£360 ÷ 15 = £24

B = 7 × £24 = £168

£ 168

(Total for Question 26 is 4 marks)

27 (a) Write 0.00562 in standard form.

5.62×10^{-3}

5.62×10^{-3}

(1)

(b) Write 1.452×10^3 as an ordinary number.

1.452 1452

1452

(1)

(Total for Question 27 is 2 marks)

28 Here are the first five terms of a Fibonacci sequence.

3 3 6 9 15 24 39

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

$9 + 15 = 24$

$15 + 24 = 39$

24 , 39

(1)

The first three terms of a different Fibonacci sequence are

1st	2nd	3rd	4th	5th	6th
a	a	$2a$	$3a$	$5a$	$8a$

(b) Find the 6th term of this sequence.

4th: $a + 2a = 3a$

5th: $2a + 3a = 5a$

6th: $3a + 5a = 8a$

$8a$

(2)

(Total for Question 28 is 3 marks)

29 $\mathbf{a} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

Work out $\mathbf{a} - 2\mathbf{b}$ as a column vector.

$2 \times \begin{pmatrix} 3 \\ 2 \end{pmatrix} = \begin{pmatrix} 6 \\ 4 \end{pmatrix}$

$\begin{pmatrix} 4 \\ 5 \end{pmatrix} - \begin{pmatrix} 6 \\ 4 \end{pmatrix} = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$

$\begin{pmatrix} -2 \\ 1 \end{pmatrix}$

(Total for Question 29 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS