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

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.

$0.75 = \dfrac{75}{100} = \dfrac{3}{4}$

$\dfrac{3}{4}$

(Total for Question 1 is 1 mark)

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

$$-3 \qquad 4 \qquad 0 \qquad -1 \qquad 2$$

$-3, \ -1, \ 0, \ 2, \ 4$

(Total for Question 2 is 1 mark)

3 Write down two factors of 15

1, 3, 5, 15

3, 5

(Total for Question 3 is 1 mark)

4 Change 1756 grams to kilograms.

$\dfrac{1756g}{1000} = 1.756 \, kg$

1.756   kg

(Total for Question 4 is 1 mark)

5 Write the number two million in figures.

2 000 000

(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.

$(2 \times £2.75) + £2.90 = £8.40$

$£10 - £8.40 = £1.60 \quad > \quad £1.50$

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.

$7y$

(Total for Question 7 is 1 mark)

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

$7ab$

(1)

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

y^3

(1)

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

$$\frac{e \times e \times e \times f}{e \times e \times f \times f} = \frac{e^3 f}{e^2 f^2} = \frac{e^{3\cancel{-2}1}}{f^{\cancel{2}1}} = \frac{e}{f}$$
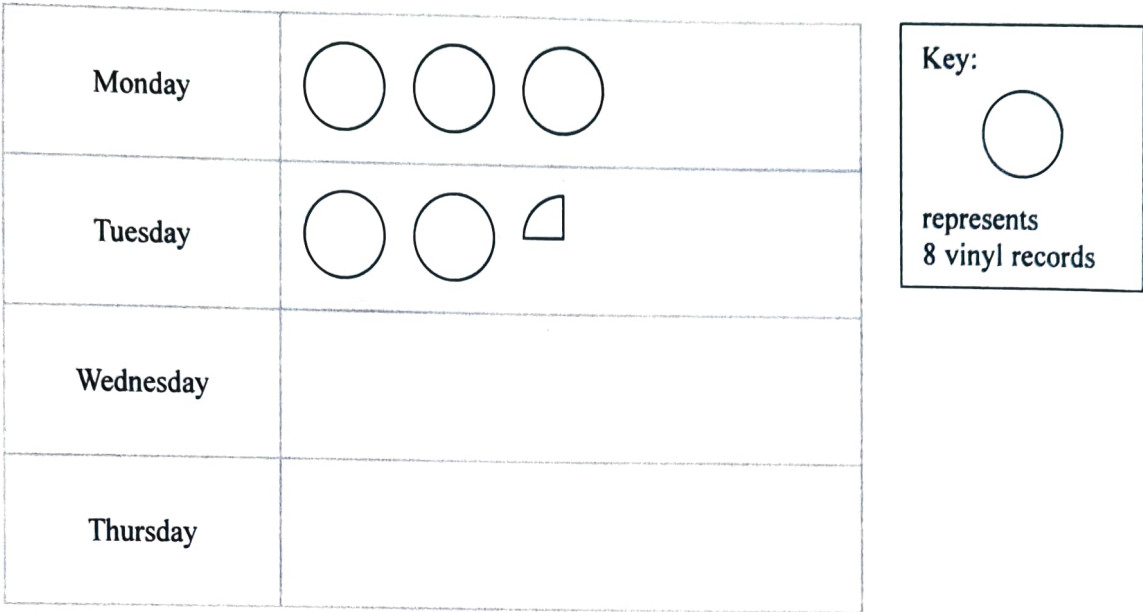
$\dfrac{e}{f}$

(2)

(Total for Question 8 is 4 marks)

P 5 4 2 2 7 A 0 4 2 0

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

		Key:
Monday	◯ ◯ ◯	◯
Tuesday	◯ ◯ ◿	represents 8 vinyl records
Wednesday		
Thursday		

(a) Write down the number of vinyl records sold

(i) on Monday,

.... 24 ....

(1)

(ii) on Tuesday.

.... 18 ....
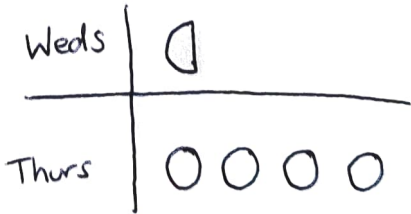
(1)

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.

$W + T = 36.$
$T = 8W$

$\Rightarrow W + 8W = 9W = 36$
$\Rightarrow W = 4$
$\Rightarrow T = 32$

Weds | ◿
Thurs | ◯ ◯ ◯ ◯

(3)

(Total for Question 9 is 5 marks)

10 Here are three symbols.

$$< \quad > \quad =$$

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

14 $\boxed{<}$ 21

$11 = 4 + 7 \boxed{=} 103 - 92 = 11$

$2^2 \boxed{=} 2 \times 2$

$-3 \boxed{>} -5$

(Total for Question 10 is 2 marks)

11 $P = 7r + 3q$

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

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

$= 35 - 12$

$= 23$

.... 23 ....

(Total for Question 11 is 2 marks)

P 5 4 2 2 7 A 0 6 2 0

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

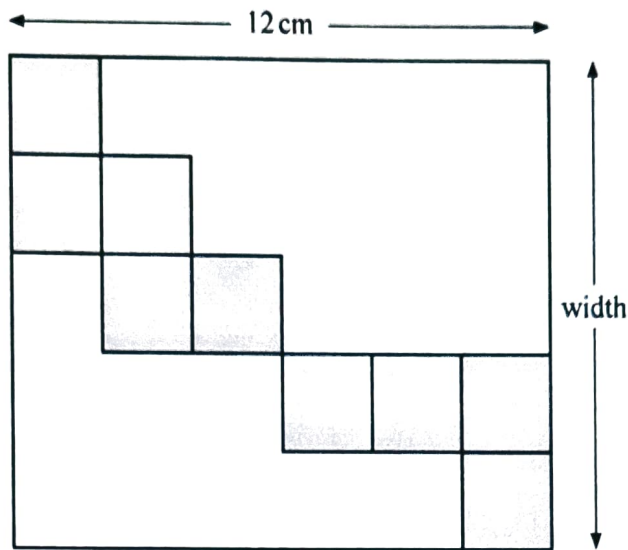............................7............................ minutes

(1)

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

98 minutes
OR
1 hour , 38 minutes

(2)

(Total for Question 12 is 3 marks)

P 5 4 2 2 7 A 0 7 2 0

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.

6 square lengths = 12 cm.

The rectangle is 5 squares tall, so,

$$\frac{12cm}{6} \times 5 = 10 cm.$$

.... 10 .... cm

(Total for Question 13 is 3 marks)

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

$$\frac{4.5}{2.25} = 2$$
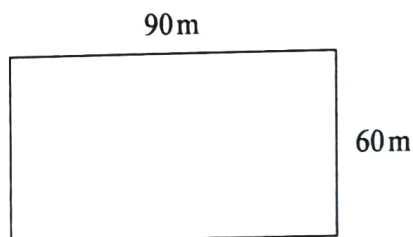
.... 2 : 1 ....

(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.

90 m

60 m

40% flowers → 60% grass

90m × 60m = 5400m²

60% of 5400m² = 3240m²

.... 3240 .... m²

(Total for Question 15 is 4 marks)

P 5 4 2 2 7 A 0 9 2 0

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	$\frac{1}{3}$
D	30%

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

.... 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.

No, the probability of landing on Tails is   1 − P(Heads)
= 1 − ⅓ = ⅔ .
⅓ ≠ ⅔ , so they are not equally likely.
(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.

4000 × 0.033 = 132

.... 132
(2)

(Total for Question 16 is 5 marks)

P 5 4 2 2 7 A 0 1 0 2 0

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: $\dfrac{60g}{100g}$ × 84 kcal = 50.4 kcal

Yoghurt: $\dfrac{150g}{100g}$ × 87 kcal = 130.5 kcal +
$$\overline{180.9 \text{ kcal}}$$

.... 180.9 kcal

(Total for Question 17 is 4 marks)

Turn over ▶

P 5 4 2 2 7 A 0 1 1 2 0

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.

On Monday
    machine A makes parts for 12 hours
    machine B makes parts for 10 hours

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

Machine A :   12 hours = 720 minutes

6 parts every 10 minutes gives

$6 \times \frac{720}{10} = 432$ parts

Machine B: 10 hours = 600 minutes

13 parts every 15 minutes gives
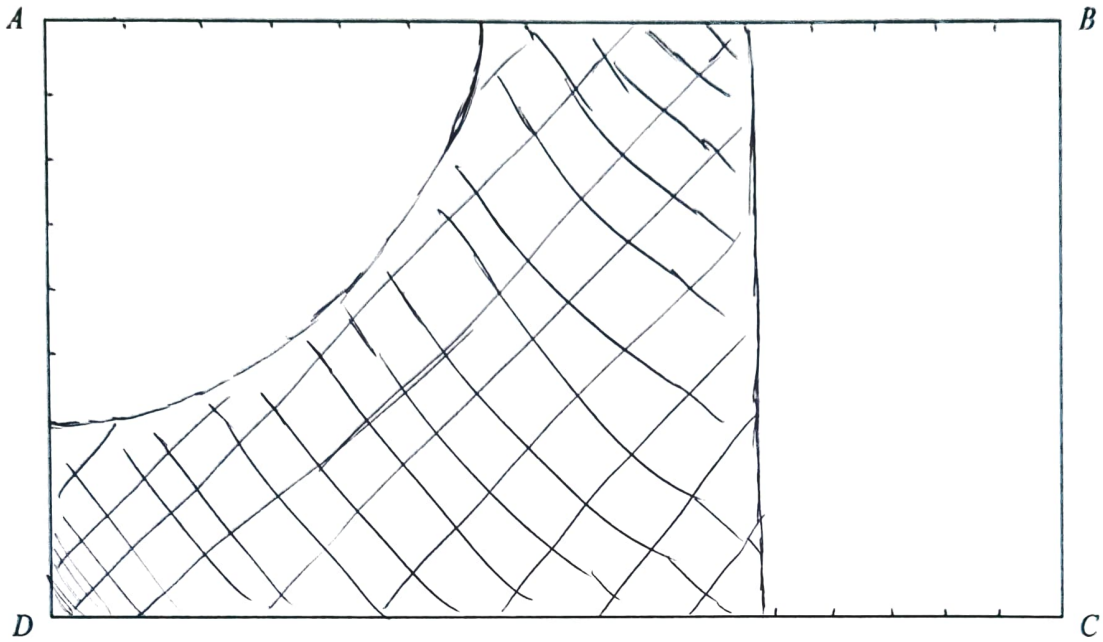
$13 \times \frac{600}{15} = 520$ parts

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

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

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

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

(Total for Question 19 is 4 marks)

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

$$14n > 11n + 6$$
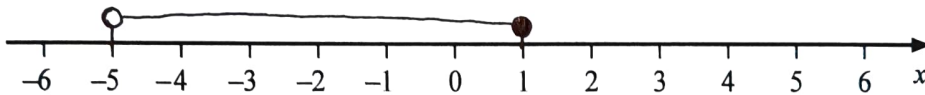$$\Rightarrow \quad 14n - 11n > 6$$
$$\Rightarrow \quad 3n > 6$$
$$\Rightarrow \quad n > 2$$

$n > 2$

(2)

(b) On the number line below, show the set of values of x for which $-2 < x + 3 \leqslant 4$
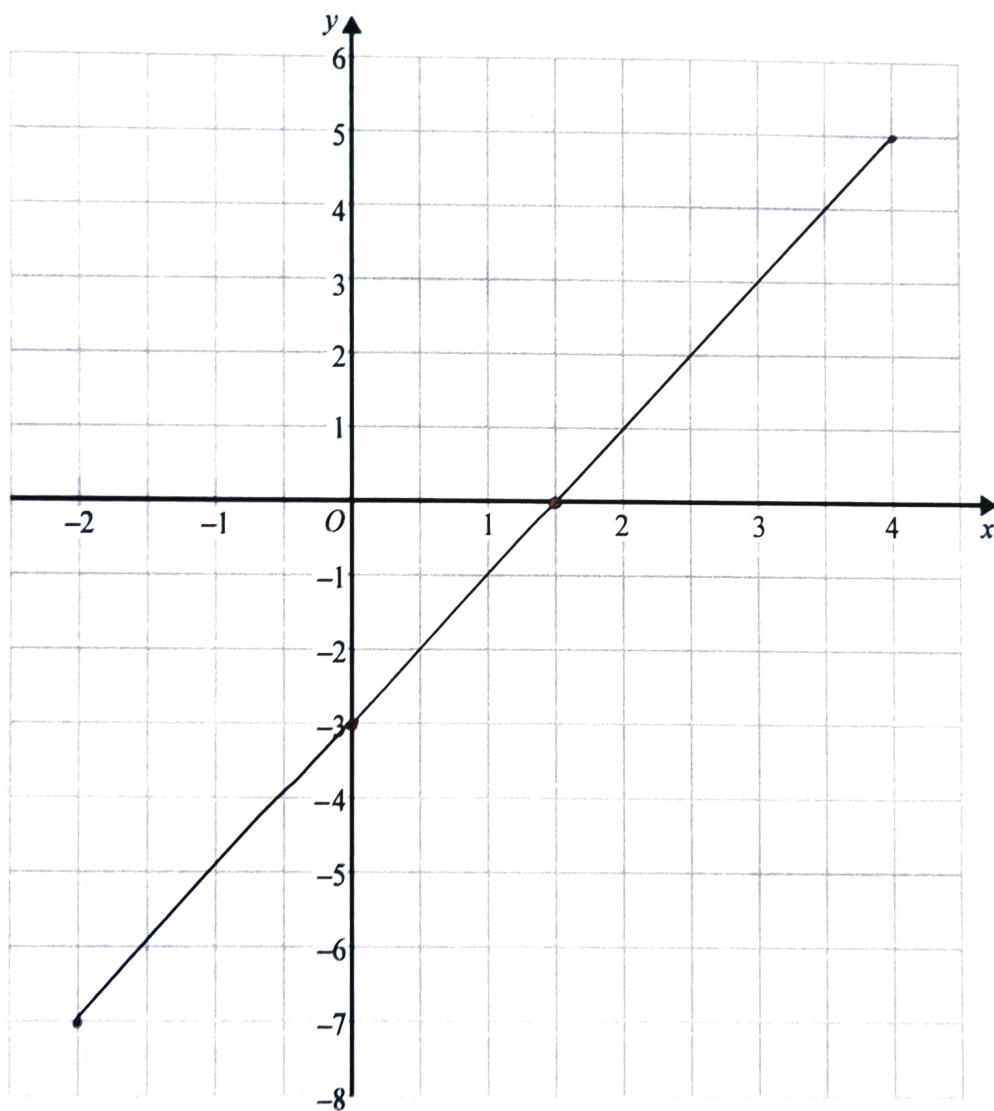
$-5 < x \leqslant 1$

(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

(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.

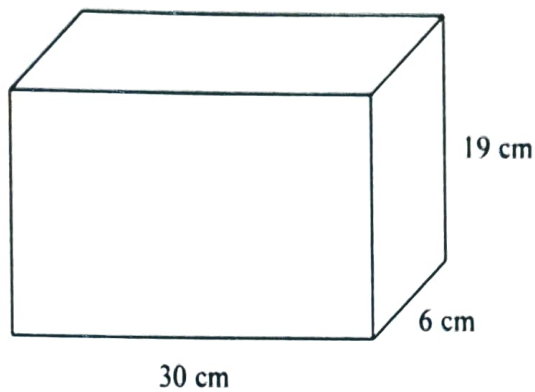$\frac{10}{30} \times 195 = 65$

............65............
(2)

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

The sample taken is purely random., if not,
the data is not representative of the population
(of 195 students).

(1)

(Total for Question 22 is 3 marks)

23 A container is in the shape of a cuboid.

19 cm

6 cm

30 cm

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

A cup holds 275 ml of water.

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

Container volume: ~~30×19×6~~ 30cm × 6cm × 19cm = 3420 cm³,

which holds 3420 ml.

$\frac{2}{3}$ × 3420 ml = 2280 ml.

$\frac{2280 ml}{275 ml}$ = 8.290̇

⇒ 8 cups

8

(Total for Question 23 is 4 marks)

P 5 4 2 2 7 A 0 1 7 2 0

24 ABC is a right-angled triangle.
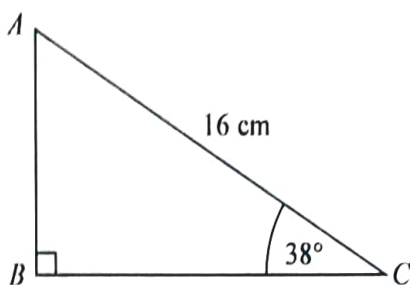
Calculate the length of AB.
Give your answer correct to 2 decimal places.

$$Sin\ 38° = \frac{AB}{16} \Rightarrow AB = 16\ sin\ 38°$$

$$= 9.85\ cm$$

..........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.... $\leqslant y <$ ...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.

$$C = D = 1.5A.$$
$$B = 3.5A,$$

$$\overline{}$$

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

$$2 + 7 + 3 + 3 = 15 \text{ parts}$$

Ben: $\frac{7}{15} \times £360 = £168$

£ ....168..........

(Total for Question 26 is 4 marks)

27 (a) Write 0.00562 in standard form.

..........5.62×10^{-3}..........

(1)

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

..........1452..........

(1)

(Total for Question 27 is 2 marks)

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

$$3 \qquad 3 \qquad 6 \qquad 9 \qquad 15$$

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

24 , 39

(1)

The first three terms of a different Fibonacci sequence are

$$a \qquad a \qquad 2a$$

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

$$a, \quad a, \quad 2a, \quad 3a, \quad 5a, \quad 8a$$

8a

(2)

(Total for Question 28 is 3 marks)

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

Work out $a - 2b$ as a column vector.

$$\begin{pmatrix} 4 \\ 5 \end{pmatrix} - 2\begin{pmatrix} 3 \\ 2 \end{pmatrix} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} - \begin{pmatrix} 2 \times 3 \\ 2 \times 2 \end{pmatrix} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} - \begin{pmatrix} 6 \\ 4 \end{pmatrix}$$

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

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

(Total for Question 29 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

P 5 4 2 2 7 A 0 2 0 2 0