Candidate surname		Other names

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

Thursday 4 June 2020

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 ▶

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1   Write 0.37 as a fraction.

$\frac{37}{100}$

(Total for Question 1 is 1 mark)

2   Write 29 381 correct to the nearest 1000

3↓

29000

(Total for Question 2 is 1 mark)

3   Simplify $3e - e + 4e$

6e

(Total for Question 3 is 1 mark)

4   Write $\frac{1}{4}$ as a percentage.

25 %

(Total for Question 4 is 1 mark)

5   Here is a list of numbers.

   3   4   .9   18   27   30   36

   From the numbers in the list, write down a cube number.

   $3 \times 3 \times 3 = \underline{\underline{27}}$

                                                          27
   ....

                                   (Total for Question 5 is 1 mark)

6   Liz is watching a film at the cinema.

   The film started at 1430
   The film is 105 minutes long.   ✓

   When the film ends, Liz takes 20 minutes to get to the bus stop.

   A bus leaves the bus stop at 1645

   Does Liz get to the bus stop in time to get this bus?
   You must show all your working.

             1430
   (+60)   1530
   (+45)   1615
   (+20)   1635

        Yes with 10mins spare

   **(Total for Question 6 is 3 marks)**

7   Farhad, George and Tom each did a test.

Here are their marks for the test.

Farhad	74
George	77
Tom	72

George drew this bar chart to show the marks they got.
The bar chart is **not** fully correct.
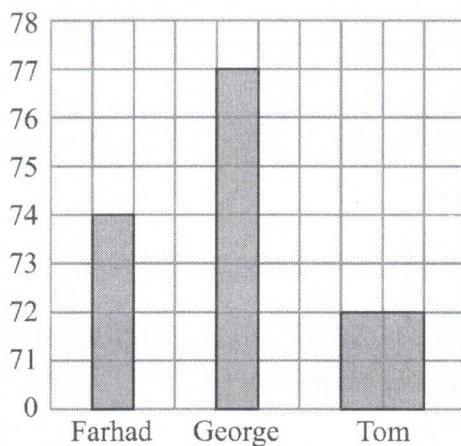
Write down **two** things that are wrong with George's bar chart.

1   y-axis jumps from 0 → 71
                      (false origin)

2   Tom's bar should be same
    width as other 2

(Total for Question 7 is 2 marks)

8
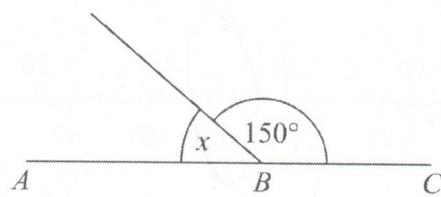
ABC is a straight line.

(a) (i) Work out the size of the angle marked *x*.

$180 - 150$

30 °

(1)

(ii) Give a reason for your answer.

Angles on a straight line make 180

(1)

The diagram below is wrong.
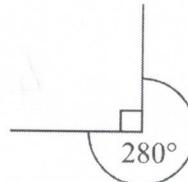
(b) Explain why.

$280 + 90 = 370$

should $= 360$

(1)

(Total for Question 8 is 3 marks)

9 This scale can be used to change between kilometres and miles.

miles
0   10   20   30   40   50

0   10   20   30   40   50   60   70   80
kilometres
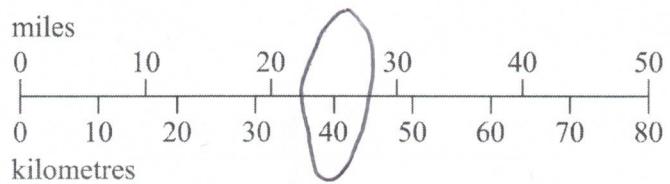
(a) Use the scale to change 40 kilometres to miles.

.... 25 ..... miles

(1)

Here is an approximate rule to change from kilometres to miles.

Divide the distance in kilometres by 10 and then multiply by 6

(b) Use this approximate rule to change 40 kilometres to miles.

$40 \div 10 = 4$

$4 \times 6 =$ .... 24 ..... miles

(2)

(c) Compare your answer to part (b) with your answer to part (a).

Answers are close so is a good approximation

(1)

(Total for Question 9 is 4 marks)

10 (a) Solve $3m = 36$

$$36 \div 3$$

$m = $ ___**12**___

(b) Solve $7 - x = 3$

$$7 - 4 = 3$$

$x = $ ___**4**___

(Total for Question 10 is 2 marks)

11 Here is a cuboid.

4 cm   15 cm   10 cm
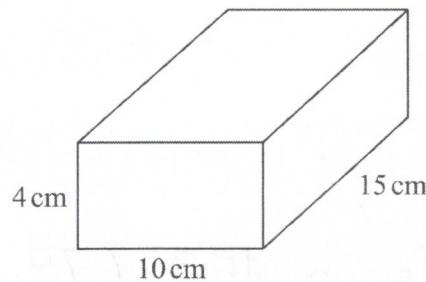
Work out the volume of the cuboid.

$$\begin{array}{r} 150 \\ \times \quad 4 \\ \hline 600 \end{array}$$

$600 \, cm^3$

(Total for Question 11 is 3 marks)

12 Lucy uses a code to open a lock.

The code is a letter followed by a 2-digit number.

The letter is L or U.
The number is a prime number between 20 and 30

Write down all the possibilities for Lucy's code.

L 23   U 23
L 29   U 29

<div align="right">

(Total for Question 12 is 2 marks)

</div>

13 A machine fills bags with sweets.

There are 4275 sweets.
There are 28 sweets in each full bag.

The machine fills as many bags as possible.

How many sweets are left?

$$4275 \div 28 = 152 \cdot 678 \ldots$$

$$152 \times 28 = 4256 \text{ sweets bagged}$$

$$\text{Left} = 4275 - 4256$$

19

<div align="right">

(Total for Question 13 is 3 marks)

</div>

14 The table gives information about the number of goals scored by each of three teams.

Team	Number of goals
City	50
Rovers	45
United	25

150
135
75

Draw an accurate pie chart for this information.

120

×3
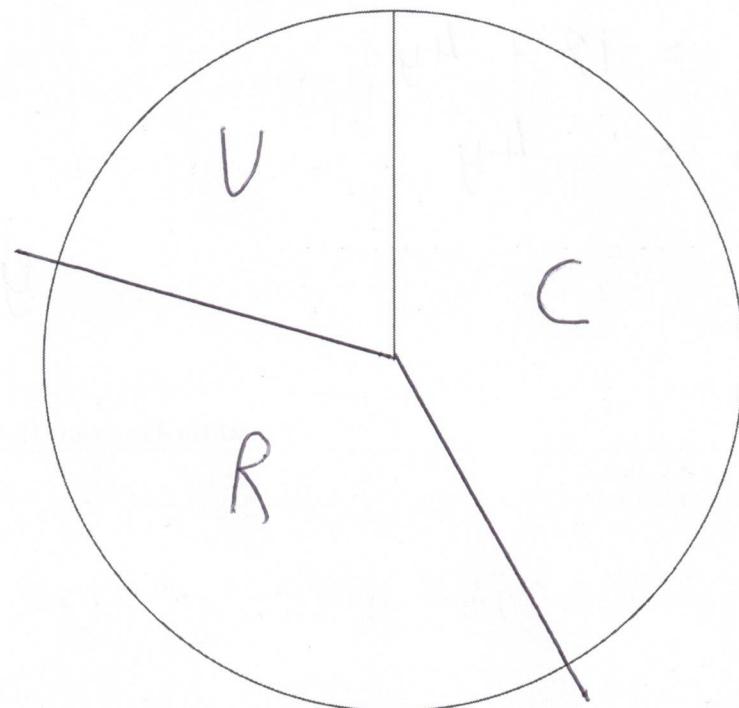
(Total for Question 14 is 3 marks)

P 6 2 2 7 5 A 0 9 2 4

15 $T = 3x + 4y$

(a) Work out the value of T when $x = 5$ and $y = -7$

$$T = 3 \times 5 \; + \; 4 \times -7$$
$$= 15 \quad - \; 28$$

-13

(2)

(b) Work out the value of y when $T = 38$ and $x = 6$

$$\Rightarrow \quad 38 = 18 + 4y$$
$$20 = \quad 4y$$

$y = 5$

(2)

(Total for Question 15 is 4 marks)

16 An exam has two papers, Paper 1 and Paper 2

Paper 1 has 60 marks.
Paper 2 has 90 marks.

The pass mark is $\frac{2}{3}$ of the total number of marks.

Danielle gets 70% of the marks for Paper 1

How many of the marks for Paper 2 must Danielle get in order to get the pass mark?

(P1) $\frac{70}{100} \times 60 = 42$ gained

$\frac{2}{3} \times 150 = 100$ needed

$100 - 42$

$= 58$

(Total for Question 16 is 4 marks)

17 Scott wants to make orange juice.
He is going to buy boxes of oranges.

| There are 24 oranges in each box of oranges. |
| 30 oranges make 2 litres of orange juice. |

Scott needs to buy enough oranges to make 8 litres of orange juice.   → 120 oranges

(a) Work out the number of boxes of oranges that Scott needs to buy.
You must show all your working.

$$120 \div 24 = 5$$

5

(3)

Scott also buys
    1260 apples
     280 bananas

(b) Write down the ratio of the number of apples that Scott buys to the number of bananas that he buys.
Give your ratio in its simplest form.

A : B
1260 : 280

÷140

9 : 2

(2)

(Total for Question 17 is 5 marks)
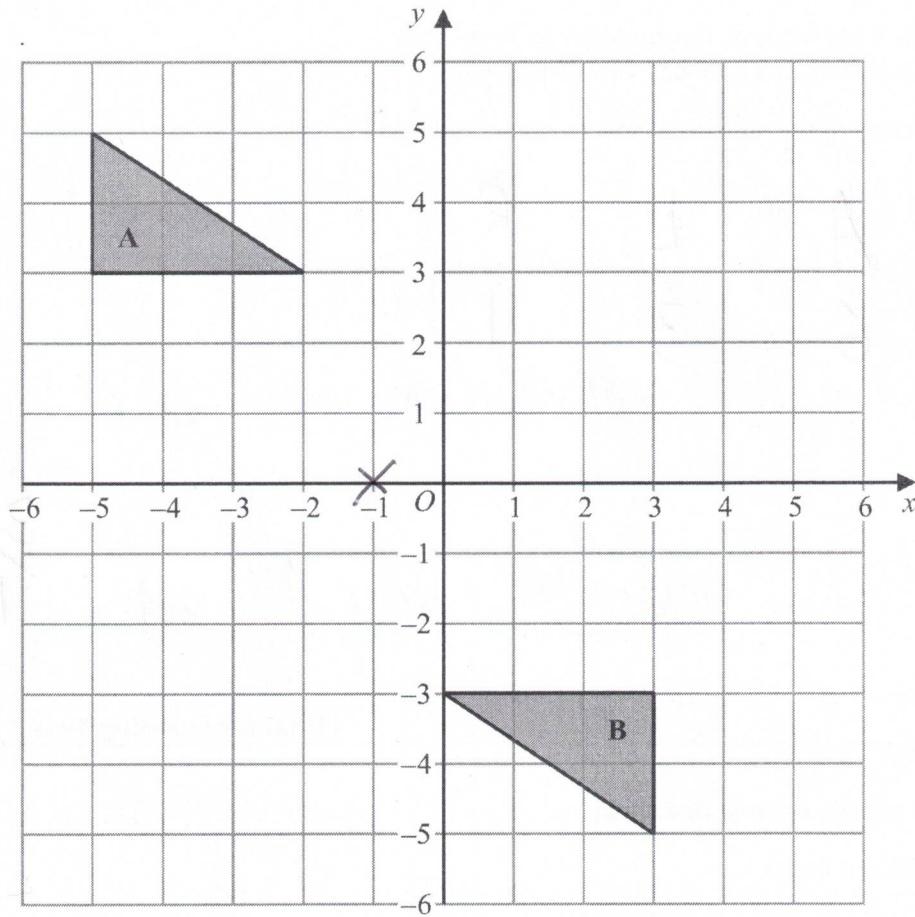
Describe fully the single transformation that maps triangle **A** onto triangle **B**.

Rotation, 180°, about (-1,0)

(Total for Question 18 is 2 marks)

P 6 2 2 7 5 A 0 1 3 2 4

19 Adam, Linda and Rytis share an amount of money.

Linda gets three times as much money as Rytis gets.
Linda gets half as much money as Adam gets.

What fraction of the amount of money does Linda get?

$$A \quad L \quad R$$
$$6 \quad 3 \quad 1$$

$$\frac{3}{10}$$

20 Pens and pencils are sold in a shop.

12 pencils cost £1.80

The ratio of the cost of a pen to the cost of a pencil is $7:3$

Work out the cost of 5 pens.

$$1 \text{pencil} = 1.80 \div 12 = 0.15$$

$$\text{pen} : \text{pencil}$$
$$\div 20 \left(\begin{array}{ccc} 7 & : & 3 \end{array} \right) \div 20$$
$$0.35 : \quad 0.15$$

$$5 \times 0.35$$

£ 1.75

P 6 2 2 7 5 A 0 1 4 2 4

21 (a) Write 84 as a product of its prime factors.
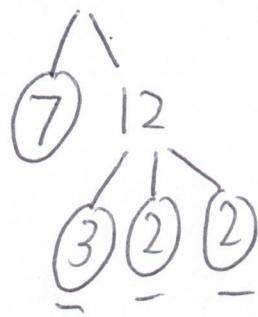
$7 \times 3 \times 2 \times 2$

....

(2)

(b) Find the lowest common multiple (LCM) of 60 and 84
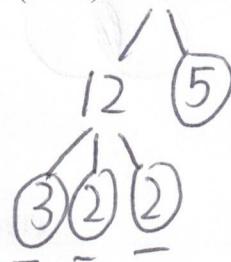
$HCF = 3 \times 2 \times 2 = 12$

$LCM = 12 \times 7 \times 5$

420

....

(2)

(Total for Question 21 is 4 marks)

22 $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
$A = \{\text{even numbers}\}$
$B = \{\text{factors of 10}\}$

(a) Complete the Venn diagram for this information.
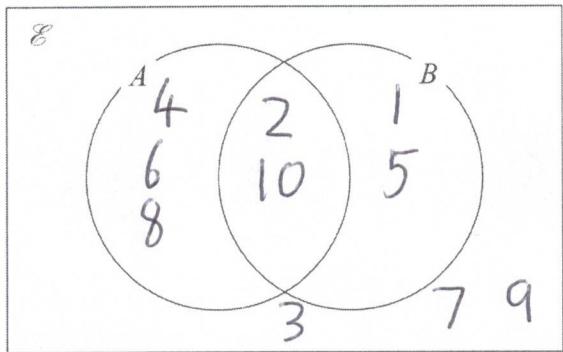
(3)

A number is chosen at random from the universal set, $\mathcal{E}$

(b) Find the probability that this number is in the set $A \cap B$

$\dfrac{2}{10}$

(2)

(Total for Question 22 is 5 marks)

23 Carlo puts tins into small boxes and into large boxes.

He puts 6 tins into each small box.
He puts 20 tins into each large box.

Carlo puts a total of 3000 tins into the boxes so that

number of tins in small boxes : number of tins in large boxes = 2 : 3

Carlo says that less than 30% of the boxes filled with tins are large boxes.

Is Carlo correct?
You must show all your working.

$3000 \div 5 = 600$

Sm : La
1200   1800

$\div 6$ $\div 20$

200 boxes : 90 boxes

$\dfrac{90}{290} \times 100 = 31 \cdot 03 \ldots$

No, it's > 30%

24 (a) Complete the table of values for $y = 5 - x^3$

x	-2	-1	0	1	2
y	13	6	5	4	-3

(2)

(b) On the grid below, draw the graph of $y = 5 - x^3$ for values of x from -2 to 2

(2)
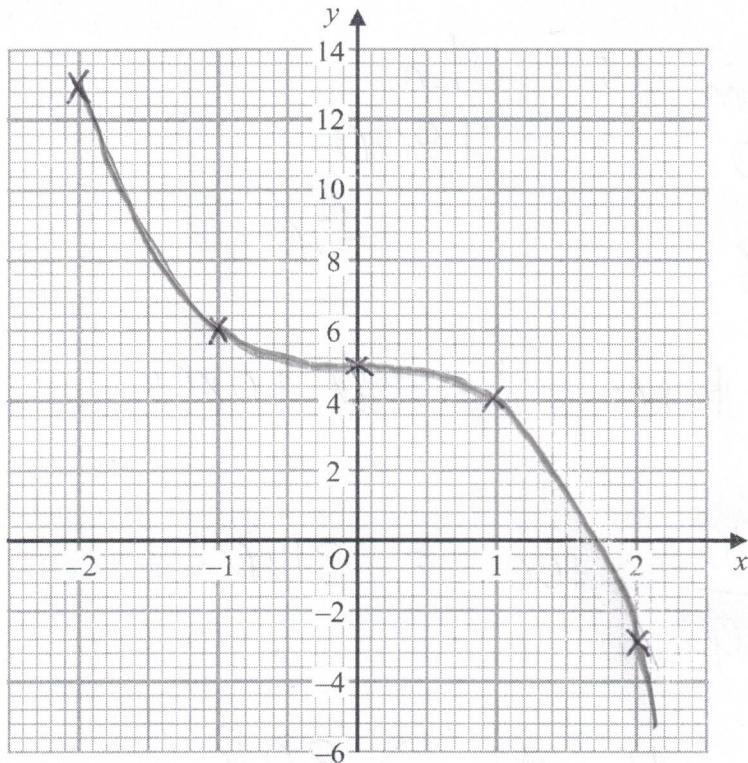
(Total for Question 24 is 4 marks)

25

hyp

178 mm

x mm   opp

34°

adj
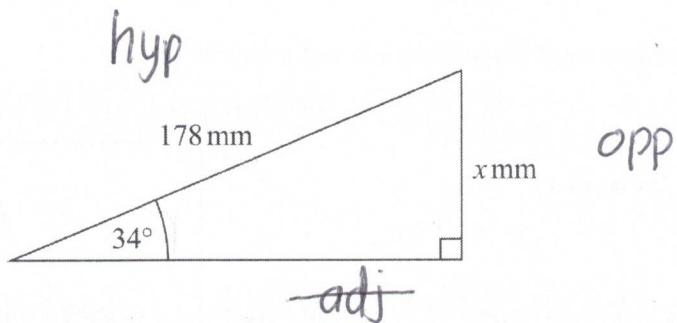
Work out the value of x.
Give your answer correct to 1 decimal place.

S $\frac{O}{H}$

$x = \sin 34 \quad \times 178$

99.5

(Total for Question 25 is 2 marks)

26 $\mathbf{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$

Find $2\mathbf{a} - 3\mathbf{b}$ as a column vector.

$2\begin{bmatrix} 3 \\ 4 \end{bmatrix} - 3\begin{bmatrix} 5 \\ -2 \end{bmatrix}$

$= \begin{bmatrix} 6 \\ 8 \end{bmatrix} - \begin{bmatrix} 15 \\ -6 \end{bmatrix}$

$\begin{pmatrix} -9 \\ 14 \end{pmatrix}$

(Total for Question 26 is 2 marks)

27 The diagram shows a right-angled triangle and a quarter circle.
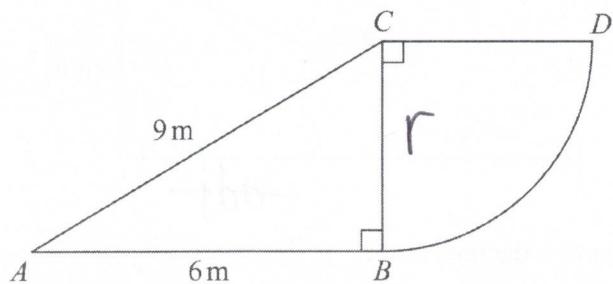
The right-angled triangle ABC has angle $ABC = 90°$
The quarter circle has centre C and radius CB.

Work out the area of the quarter circle.
Give your answer correct to 3 significant figures.
You must show all your working.

$$r^2 = 9^2 - 6^2$$

$$r^2 = 45$$

$$r = 3\sqrt{5}$$

$$\text{Area} = \pi \times (3\sqrt{5})^2 \div 4$$

$$= 35.3429\ldots$$

35.3 .... m^2

(Total for Question 27 is 4 marks)

P 6 2 2 7 5 A 0 2 0 2 4

28 Each exterior angle of a regular polygon is 15°

Work out the number of sides of the polygon.

Ext angles add to 360

$360 \div 15$

= 24

(Total for Question 28 is 2 marks)

29 Write down the gradient of the line with equation $y = 2x + 3$

m = 2

2

(Total for Question 29 is 1 mark)

TOTAL FOR PAPER IS 80 MARKS