Please check the examination details below before entering your candidate information

Candidate surname [redacted] Other names [redacted]

Centre Number [redacted] Candidate Number [redacted]

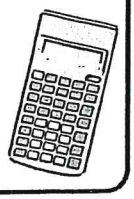
Pearson Edexcel Level 1/Level 2 GCSE (9–1)

mr Shergill

Morning (Time: 1 hour 30 minutes)

Paper reference **1MA1/3F**

Mathematics
PAPER 3 (Calculator)
Foundation Tier



You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB or B pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks 44

Instructions

~~110~~
~~150~~
~~24~~
~~25~~

- Use **black** ink or ball-point pen.
- If pencil is used for diagrams/sketches/graphs it must be dark (HB or B).
- **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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▷

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Y:1/1/1/1/1/

P 7 6 4 0 6 A 0 1 2 4

Pearson

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write down the value of the 7 in the number 49.715

00.7

(Total for Question 1 is 1 mark)

2 Find $\sqrt{5.76}$

2.4

(Total for Question 2 is 1 mark)

3 Write 19% as a fraction.

$\frac{19}{100}$

(Total for Question 3 is 1 mark)

4 Here are some fractions.

$\frac{3}{9}$ $\frac{1}{3}$ $\frac{6}{18}$ $\frac{1}{3}$ $\frac{2}{6}$ $\frac{1}{3}$ $\frac{4}{10}$ $\frac{5}{15}$ $\frac{1}{3}$

Which one of these fractions is **not** equivalent to $\frac{1}{3}$?

$\frac{4}{10}$

(Total for Question 4 is 1 mark)

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5 Write down two factors of 32

1

8 , 4

(Total for Question 5 is 1 mark)

6 Abi has some £10 notes and some £20 notes.
The notes have a total value of £400

Abi has six £20 notes.

Work out the number of £10 notes Abi has.

6 × 20 = £120

400 - 120 = 280

10 × 28 = 280

3

28

~~£28~~

(Total for Question 6 is 3 marks)

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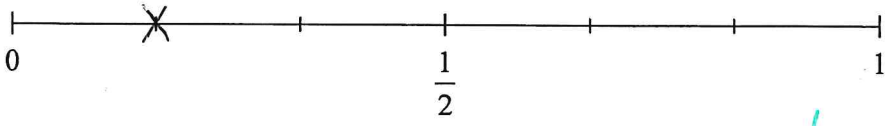
7 Tom has a fair ordinary dice.

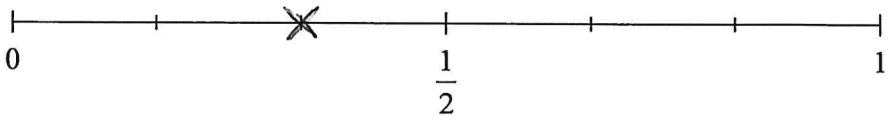
He rolls the dice once.

(a) On the probability scale below, mark with a cross (×) the probability that Tom gets the number 2



(1)

(b) On the probability scale below, mark with a cross (×) the probability that Tom gets a number greater than 4



1 2 3 4 5 6

(1)

(Total for Question 7 is 2 marks)

8 Here is a menu.

Drink	Cake
Coffee (C)	Brownie (B)
Tea (T)	Flapjack (F)
Lemonade (L)	Scone (S)

Asma can choose one drink and one cake.

Write down all the possible combinations Asma can choose.

CB, CF, CS

TB, TF, TS

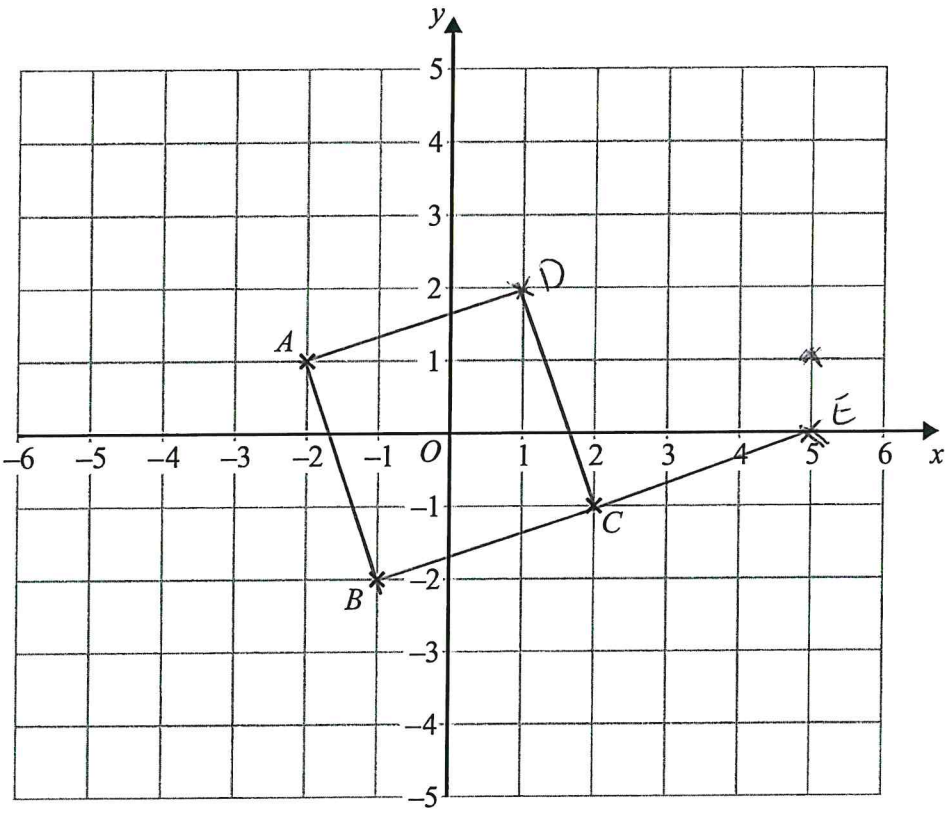
LB, LF, &LS

2

(Total for Question 8 is 2 marks)

P 7 6 4 0 6 A 0 4 2 4

9



(a) Write down the coordinates of point A.

(-2 , 1)

(1)

(b) On the grid, mark with a cross (×) the point D so that $ABCD$ is a square.
Label this point D.

(1)

(c) On the grid, mark with a cross (×) the point E so that C is the midpoint of BE.
Label this point E.

(1)

(Total for Question 9 is 3 marks)

10 Jason says,

"The cube root of 27 is 9 because 27 divided by 3 is 9"

Is Jason correct?
You must give a reason for your answer.

1

no as cube root is multiplying it by itself 3 times and 9^3 is 729 not 27 and the cube root of $\sqrt{27}$ is $= \sqrt[3]{3} = 5.196$. So he is wrong

(Total for Question 10 is 1 mark)

11 Elena's height is 136 centimetres. 1.36m
George's height is 1.2 metres.

Elena's height is greater than George's height.

How many centimetres greater?

cm into m = x100

1.20 ÷100

0.16x100

2

16.

..... centimetres

(Total for Question 11 is 2 marks)

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12 The nth term of a sequence is $4n - 1$

(a) Work out the 3rd term of the sequence.

$4 \times 1 - 1 = 3$
$4 \times 2 - 1 = 7$
$4 \times 3 - 1 = 11$

11

(1)

1

Here are the first four terms of a different sequence.

9 15 21 27 33 39 45 51 57 63

(b) Is 63 a number in this sequence?
You must give a reason for your answer.

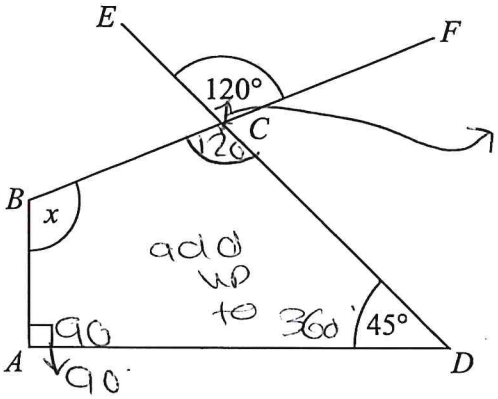
A yes as when you add 6 every time you will get to 63 from $57 + 6 = 63$

(2)

2

(Total for Question 12 is 3 marks)

13 *ABCD* is a quadrilateral.
BCF and *DCE* are straight lines.



vertically opposite angles are equal

add up to 360

Work out the size of the angle marked x.
Give a reason for each stage of your working.

$120 + 45 + 90 = 255$

$360 - 255 = 105$

3

105 °

(Total for Question 13 is 4 marks)

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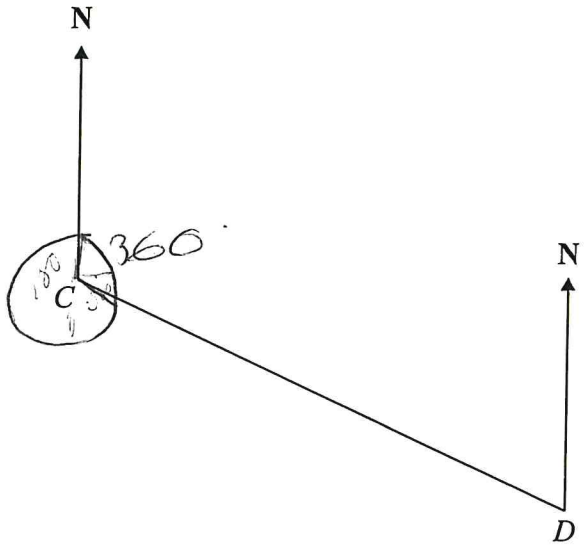
14 The accurately drawn diagram shows two points, C and D, on a map.



(a) Find the bearing of D from C.

85
08 °

(1)

The scale of the map is 1 cm represents 4 km.

(b) Work out the real distance from C to D.

7cm

7cm x 4 = 28

1cm x 4 = 4

2cm x 4 = 8

28 km

(2)

(Total for Question 14 is 3 marks)

15 There are 200 counters in a bag.

87 of the counters are green.
24 of the counters are yellow.

(a) What fraction of the counters are green?

$\frac{87}{200}$

(1)

(b) What percentage of the counters are yellow?

24 %

(1)

(Total for Question 15 is 2 marks)

16 A team plays 48 games.

The team wins $\frac{3}{8}$ of the 48 games.

The number of games the team loses is the same as the number of games the team draws.

Work out the number of games the team loses.

$\frac{3}{8}$ of $48 = 18$

$48 - 18 = 30$

$30 \div 2 = 15$

15 games lost
15 games drew
18 games won.

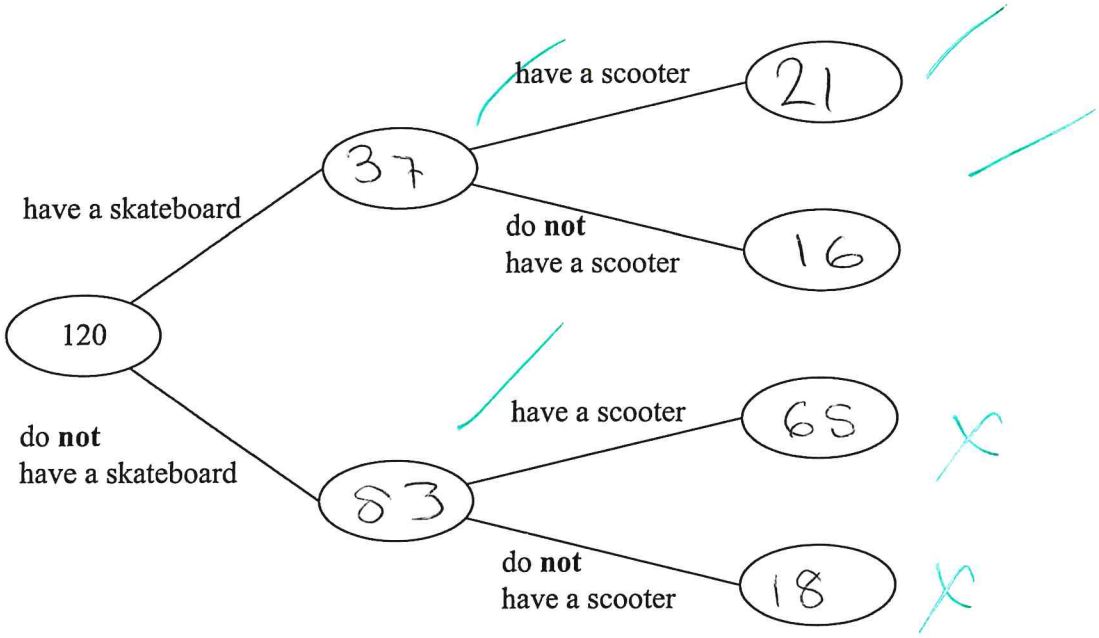
15

(Total for Question 16 is 3 marks)

17 120 students are asked if they have a skateboard or a scooter.

37 of the students have a skateboard.
21 of the students who have a skateboard also have a scooter.
65 of the students have a scooter.

(a) Use this information to complete the frequency tree.



(3)

One of the 120 students is chosen at random.

(b) Find the probability that this student does **not** have a skateboard.

$\frac{83}{120}$

.....

(1)

(Total for Question 17 is 4 marks)

18 Amy buys a car.
The car costs £12 000

Amy pays a deposit of 20% of the cost. = £2400
She pays the rest of the cost in 24 equal monthly payments.

Amy says that each monthly payment is less than £450 = 9600

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

£12000 - car

deposit 20% of car = £2400

24 months equal

12000 - 2400 = £9600 left to

months equal pay

9600 ÷ 24 = £400

monthly payment is £400

So yes Amy is correct it is less than £450. 3

(Total for Question 18 is 3 marks)

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19 Katya counted the number of people in each of 50 cars.

The table gives information about her results.

Number of people	Frequency
1	16
2	15
3	7
4	9
5	3

15 ÷ 5 = 3
50 ÷ 5 = 10
50

(a) Find the median number of people.

3, 7, 9, 15, 16

4

0

.....

(1)

(b) Work out the mean number of people.

16 + 1 3 + 7 + 1 3 + 7 + 9 + 15 + 16
= 50 ÷ 5 = 10

1 + 2 + 3 + 4 + 5 =
3 6 10 15

15 ÷ 5 = 3

3

10

0

.....

(3)

(Total for Question 19 is 4 marks)

20 (a) Use your calculator to work out the value of

$$\frac{42.1 - 29.53}{9.82 + 37.6}$$

Give your answer as a decimal.
Write down all the figures on your calculator display.

0.26507802761

(2)

(b) Write your answer to part (a) correct to 2 significant figures.

2

0.3

(1)

0

(Total for Question 20 is 3 marks)

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21 (a) Simplify $y^{10} \div y^2$

y^8

(1) 1

(b) Simplify $(e^3)^2$

e^5

(1) 0

(c) Expand $x(3x^2 + 5)$

$3x^3 + 15x$

(1) 0

(d) Expand and simplify $(n + 5)(n - 2)$

$n \times n = n^2$

$n \times -2 = -2n$

$5 \times n = 5n$

$5 \times -2 = -10$

good

$n^2 + 3n - 10$

(2) 2

(Total for Question 21 is 5 marks)

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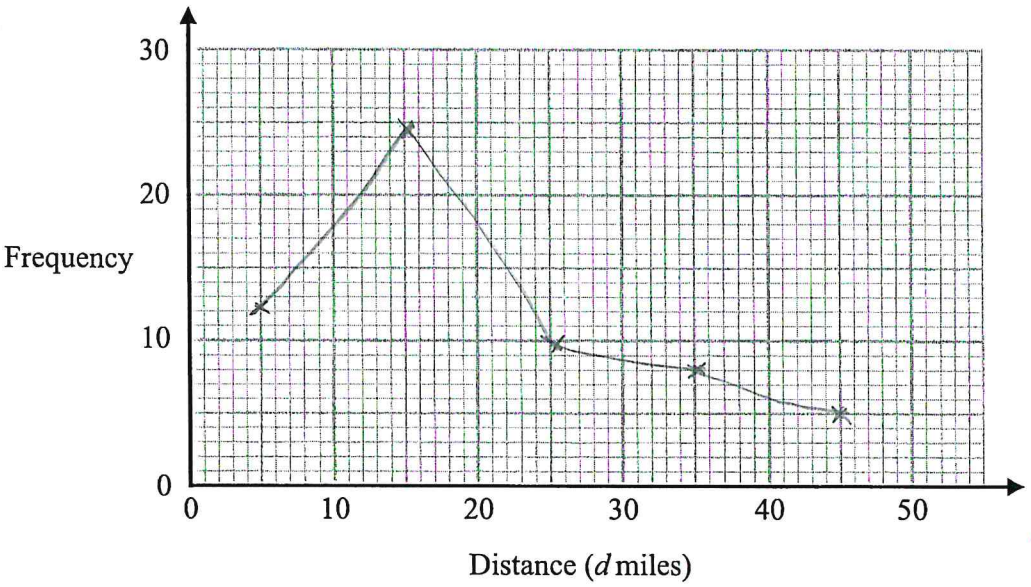
22 The table shows information about the distances that 60 people travel to work.

Distance (d miles)	Frequency
$0 < d \leqslant 10$	12
$10 < d \leqslant 20$	25
$20 < d \leqslant 30$	10
$30 < d \leqslant 40$	8
$40 < d \leqslant 50$	5

Draw a frequency polygon for the information in the table.



2

(Total for Question 22 is 2 marks)

23 Ben is trying to make m the subject of $p = \frac{m}{3} + 5$

÷3 p=m+5

Here is his working.

$$p - 5 = \frac{m}{3}$$

$$3 \times p - 5 = m$$

$$m = 3p - 5$$

Ben's answer is wrong.

(a) What mistake has Ben made?

he has to divide by 3 first to be able to make R m the subject.

(1)

0

(b) Factorise fully $2x^3y + 4xy^2$

$2x^3y^1 \times 4x^1y^2 = 8x^4y^3$

0

$8x^4y^3$

(2)

(Total for Question 23 is 3 marks)

24 Mia pays £25 for 200 oranges. = [redacted]

Mia puts the oranges into bags.
She puts 5 oranges into each bag.

Mia sells all the bags of oranges for £1 each bag.

Work out Mia's percentage profit.

200 ÷ 5 = 40

£25 for 200

40 per bag

1 x 40 = 40 makes £40

£1 is profit

15 %

(Total for Question 24 is 3 marks)

1.

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25 In London, 2 kg of carrots cost £3.75
In New York, 5 lbs of carrots cost 4.90 US dollars.

£1 = 1.20 US dollars
1 kg = 2.2 lbs

In which city are carrots better value for money, London or New York?
You must show how you get your answer.

2kg : £3.75
5lbs = $4.90

£1 = 1.20 $

1kg = 2.2lbs

2kg = 4.4

1.1lbs = 0.5kg

2.2 × 5 = 11lbs

11 × 1 = 11kg

2.2 × 10 = 22

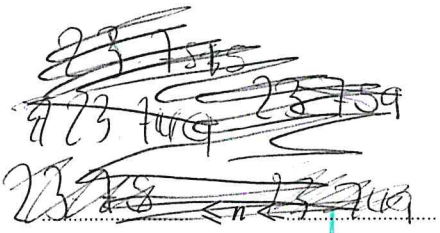
London is the best value for money.

(Total for Question 25 is 4 marks)

26 Karim rounds a number, n, to 1 decimal place.
The result is 23.8

Complete the error interval for n.

$= 23.75 \leq n < 23.849$



(Total for Question 26 is 2 marks)

27 A plane takes 2 hours 24 minutes to fly from Luton to Alicante.
The plane flies a distance of 1512 kilometres.

Work out the average speed of the plane.
Give your answer in kilometres per hour.

144

$10.5 \times 144 = 1512$

10.50 kilometres per hour

(Total for Question 27 is 3 marks)

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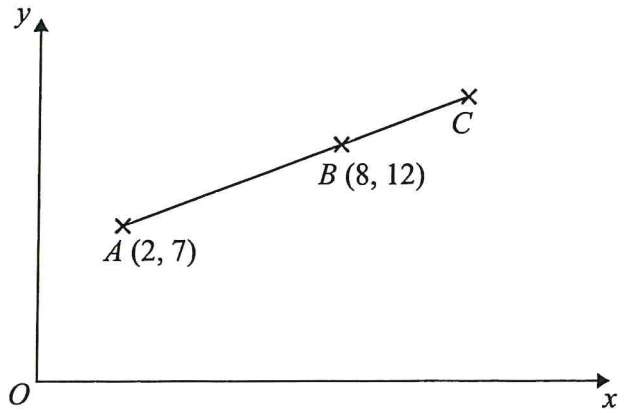
28 ABC is a straight line.



Point A has coordinates (2, 7)
Point B has coordinates (8, 12)

$BC = \frac{1}{2}AB$

Find the coordinates of point C.

(2, 7)
(8, 12)
(6, 5)
(8, 12)
(6, 5)
~~(14, 17)~~
2
(14, 17)
7

$\sqrt{17}$
5

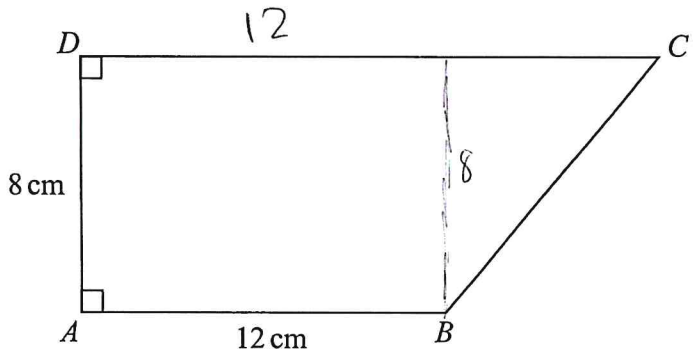
0

7 8.5

(~~14~~ , 17)

(Total for Question 28 is 3 marks)

29 The diagram shows trapezium $ABCD$.



$AB = 12\,\text{cm}$
$AD = 8\,\text{cm}$

The trapezium has an area of $112\,\text{cm}^2$

Work out the perimeter of the trapezium.
Give your answer correct to 3 significant figures.

$8 \times 12 = 96 + 16 = 112$

0

..... cm

(Total for Question 29 is 5 marks)

30 Solve algebraically the simultaneous equations

$$x + 7y = 14$$
$$3x - y = 9$$

$x + 7y = 14$

$7 \times 7 + 7 \times 1 = 14$

$3x - y = 9$

7

$3 \times 7 - 12 = 9$

$21 -$

$7 \times 7 + 7 \times 1 = 14$

$x + 7y = 14$

$7 + 7 = 14$

$3 \times 7 - 12 = 9$

$21 - 12 = 9$

0

$x =$ 7

$y =$ 12

(Total for Question 30 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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