Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

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

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 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P64633A

E:1/1/1/1/1/1/1/1/

P 6 4 6 3 3 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 45% as a decimal.

$45 \div 100 = 0.45$

(Total for Question 1 is 1 mark)

2 Write down two factors of 35

1×35

5×7

1, 5

(Total for Question 2 is 1 mark)

3 What is the time 2 hours 40 minutes after 8.05 am?

+40m → 8.45 +2hr → 10.45

..... am

(Total for Question 3 is 1 mark)

4 Work out $\frac{1}{6}$ of 66

$66 \div 6 = 11$

(Total for Question 4 is 1 mark)

5 *AB* is a straight line.

Mark with a cross (×) the midpoint of *AB*.

(Total for Question 5 is 1 mark)

6 (a) Simplify $a \times b \times 4$

4ab

(1)

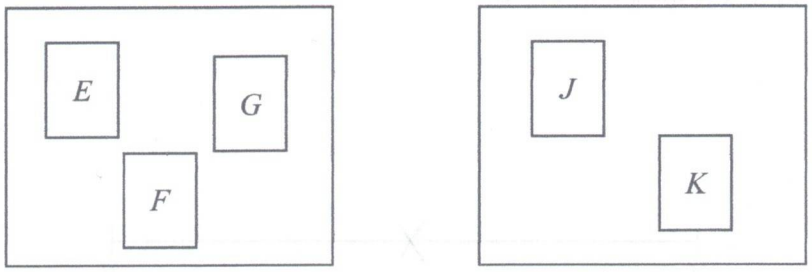
(b) Simplify $4x + 3 - x + 5$

3x + 8

(2)

(Total for Question 6 is 3 marks)

7 There are three cards in bag **A** and two cards in bag **B**.
There is a letter on each card.



Bag **A** Bag **B**

James takes a card from bag **A** and then a card from bag **B**.

List all the possible outcomes.

EJ GJ FJ
EK GK FK

(Total for Question 7 is 2 marks)

8 On Monday, Sandy pays for 2 plane tickets, 7 nights in a hotel and 2 theme park tickets.

	dollars
each plane ticket	600
each night in a hotel	120
each theme park ticket	250

x2 = 1200
x7 = 840
x2 = 500

Show that Sandy pays more than 2500 dollars on Monday.

1200 + 840 + 500

= 2540

(Total for Question 8 is 3 marks)

9 Vadim has 56 clocks.
The clocks are only red, only blue or only black.

32 of the clocks are plastic.
5 of the 14 blue clocks are plastic.
8 of the 12 red clocks are **not** plastic.

Use this information to complete the two-way table.

	Red	Blue	Black	Total
Plastic	4	5	23	32
Not plastic	8	9	7	24
Total	12	14	30	56

(Total for Question 9 is 3 marks)

10 Corina has £300 to spend on books.
Each book costs £4.85

Work out the greatest number of books Corina can buy.

$300 \div 4.85 = 61.8...$

61

(Total for Question 10 is 3 marks)

11 (a) Write 196 minutes in hours and minutes.

3 hours 16 minutes

(2)

A train travels x miles in 2 hours.

(b) Write down an expression, in terms of x, for the average speed of the train.

$S = \frac{D}{T}$

$\frac{x}{2}$ miles per hour

(1)

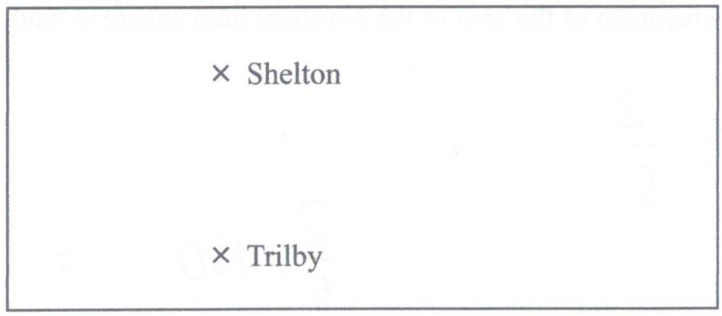
(Total for Question 11 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

12 The diagram shows two places on a map.



Scale: 1 centimetre represents 20 kilometres

(a) What is the actual distance, in kilometres, from Shelton to Trilby?

2.5 × 20

50

..... kilometres (2)

(ms, 46 - 54)

On a scale drawing, the scale is given as 1 : 1200

(b) How many metres does 5 centimetres represent on this drawing?

5 × 1200 = 6000 cm

→ m ÷ 100

60

..... metres (2)

(Total for Question 12 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

13 In the Northern hemisphere the ratio of the area of land to the area of water is 2 : 3

(a) Work out what percentage of the area of the Northern hemisphere is land.

Land = $\frac{2}{5}$

$\frac{2}{5} \times 100 = 40$

..... %

(2)

20% of the area of the Southern hemisphere is land.

(b) Work out the ratio of the area of land to the area of water in the Southern hemisphere.

L : W

20 : 80

etc 1 : 4

.....

(2)

(Total for Question 13 is 4 marks)

14 A stadium cost £600 million.

$\frac{13}{15}$ of this cost was for the building.

The rest of the cost was for the land.

Work out the cost of the land.

Land = $\frac{2}{15} \times 600$

£ 80 million

(Total for Question 14 is 3 marks)

15 Jenna measures all the angles around a point.

Her results are 23°, 145°, 23° and 69°

Explain why these results cannot be true.

Total = 260

should be 360

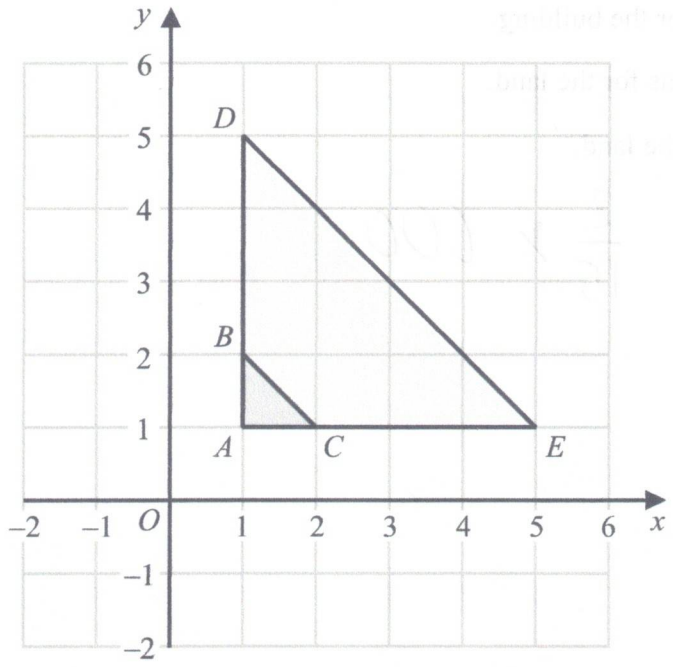
(Total for Question 15 is 1 mark)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

16 Here is a diagram showing triangle *ABC* and triangle *ADE*.



Describe fully the single transformation that maps triangle *ABC* onto triangle *ADE*.

Enlargement
Centre (1,1)
Scale factor = 4

(Total for Question 16 is 2 marks)

17 (a) Expand $y(y + 5)$

$y^2 + 5y$

(1)

(b) Factorise $4a - 6$

$2(2a - 3)$

(1)

(c) Solve $2(5x - 4) = 21$

$10x - 8 = 21$

$10x = 29$

$x = 29 \div 10$

$x = 2.9$

(3)

(d) Simplify $4e^2f \times 5ef^3$

$20e^3f^4$

(2)

(Total for Question 17 is 7 marks)

18 Change 1 m^2 into cm^2

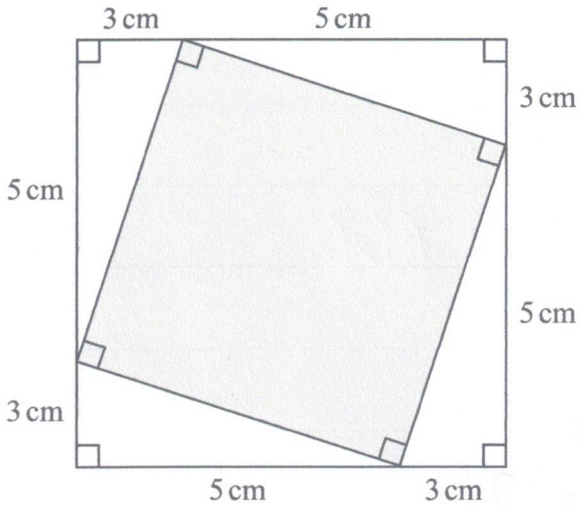
1 m^2 1

100 cm^2 100

10000 cm^2

(Total for Question 18 is 1 mark)

19 This diagram shows two squares.



Work out the area of the square shown shaded in the diagram.

$8 \times 8 = 64$

$\triangle = 4 \times \frac{1}{2} \times 3 \times 5$

$= 30$

$64 - 30$

34 cm^2

(Total for Question 19 is 4 marks)

20 Here are the heights, in centimetres, of 15 plants.

15	20	25	33	17	22	25	18
22	19	32	35	24	28	19	

Draw a stem and leaf diagram for these heights.

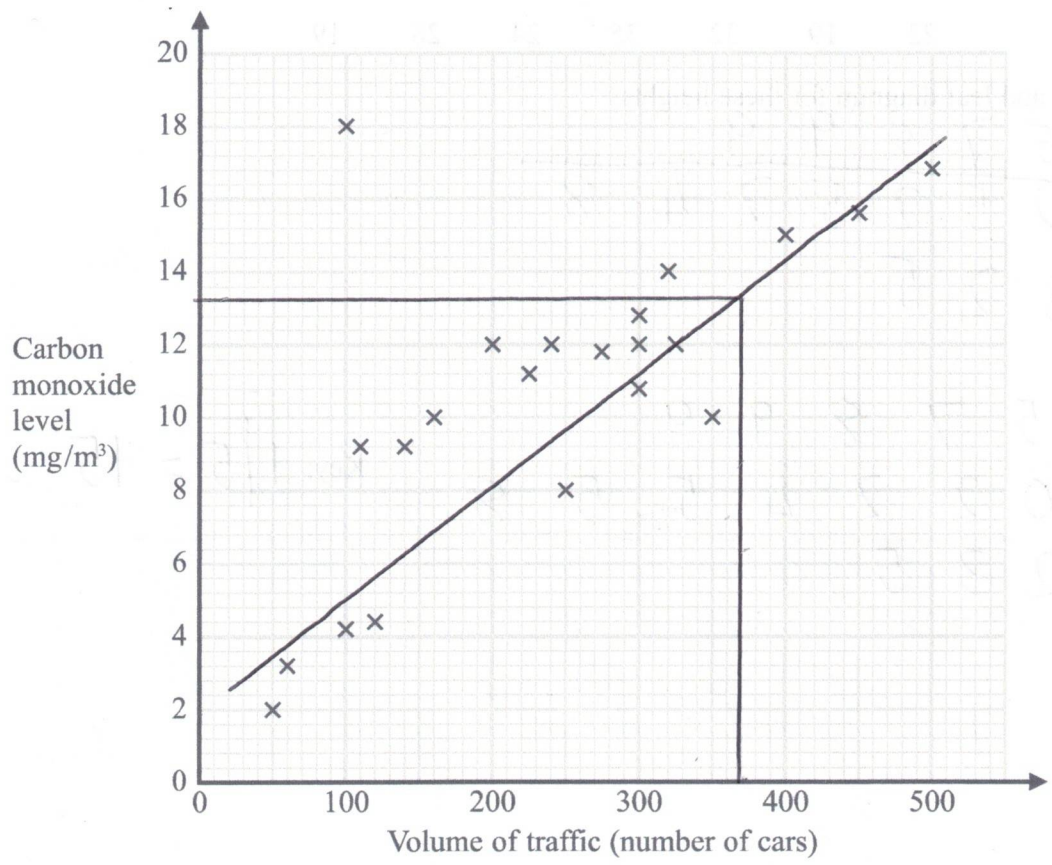
1	5 7 8 9 9
2	0 5 2 5 2 4 8
3	3 2 5

1	5 7 8 9 9
2	0 2 2 4 5 5 8
3	2 3 5

Key: 1|5 = 15

(Total for Question 20 is 3 marks)

21 The scatter graph shows information about the volume of traffic and the carbon monoxide level at a point on a road each day for 22 days.



One point is an outlier.

(a) Write down the coordinates of this point.

(100 , 18)

(1)

For another day, 370 cars pass the point on the road.

(b) Estimate the carbon monoxide level for this day.

(m/s 12·8 → 14·8)

13·2 mg/m³

(2)

Alfie says,

"Because there is an outlier, there is no correlation."

(c) Is Alfie correct?
You must give a reason for your answer.

Outliers can be ignored

(1)

(Total for Question 21 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

22 Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

weight of potato : weight of cheese : weight of onion = 9 : 2 : 1

Natalie needs to make 6000 g of potato cakes.

Cheese costs £2.25 for 175 g.

Work out the cost of the cheese needed to make 6000 g of potato cakes.

P : C : O

9 : 2 : 1 = 12

x 500 x 500

= 1000g 6000g

175g → 1000g

x 5.714...

£2.25 x 5.714... = 12.857...

£ 12.86

(Total for Question 22 is 4 marks)

23 (a) Write 4.5×10^5 as an ordinary number.

4 5 0 0 0 0

450 000

(1)

(b) Write 0.007 in standard form.

0.007

7×10^{-3}

(1)

(c) Work out $4.2 \times 10^3 + 5.3 \times 10^2$
Give your answer in standard form.

= 4730

$= 4.73 \times 10^3$

(2)

(Total for Question 23 is 4 marks)

24 A water tank is empty.
Anil needs to fill the tank with 2400 litres of water.

Company **A** supplies water at a rate of 8 litres in 1 minute 40 seconds. = 100 secs
Company **B** supplies water at a rate of 2.2 gallons per minute.

1 gallon = 4.54 litres

Company **A** would take more time to fill the tank than Company **B** would take to fill the tank.

How much more time?
Give your answer in minutes correct to the nearest minute.

A

2400 ÷ 8 = 300

300 x 100 = 30000 secs

= 500 min

B

2·2g = 9·988 litres

2400 ÷ 9·988

= 240 min

500 - 240 = 260

..... minutes

(Total for Question 24 is 4 marks)

25 The first four terms of a Fibonacci sequence are

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

The sum of the first five terms of this sequence is 228

Work out the value of a.

$19a = 228$

$a = 228 \div 19$

$= 12$

(Total for Question 25 is 3 marks)

26 In a bag there are only red counters, blue counters, green counters and pink counters.
A counter is going to be taken at random from the bag.

The table shows the probabilities of taking a red counter or a blue counter.

Colour	red	blue	green	pink
Probability	0.05	0.15	0.85	0.3

The probability of taking a green counter is 0.2 more than the probability of taking a pink counter.

(a) Complete the table.

$1 - 0.2$

$= 0.8$

$0.8 \div 2 = 0.4$ = halfway

(2)

There are 18 blue counters in the bag.

(b) Work out the total number of counters in the bag.

$0.15 = 18$ blue

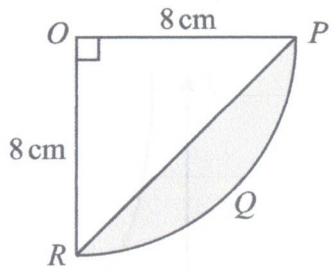
$0.05 = 6$ blue

$6 \times 20 = 120$

(2)

(Total for Question 26 is 4 marks)

27 The diagram shows a sector $OPQR$ of a circle, centre O and radius 8 cm.



OPR is a triangle.

Work out the area of the shaded segment PQR.
Give your answer correct to 3 significant figures.

$\square = \pi \times 8^2 \div 4 = 16\pi \text{ cm}^2$

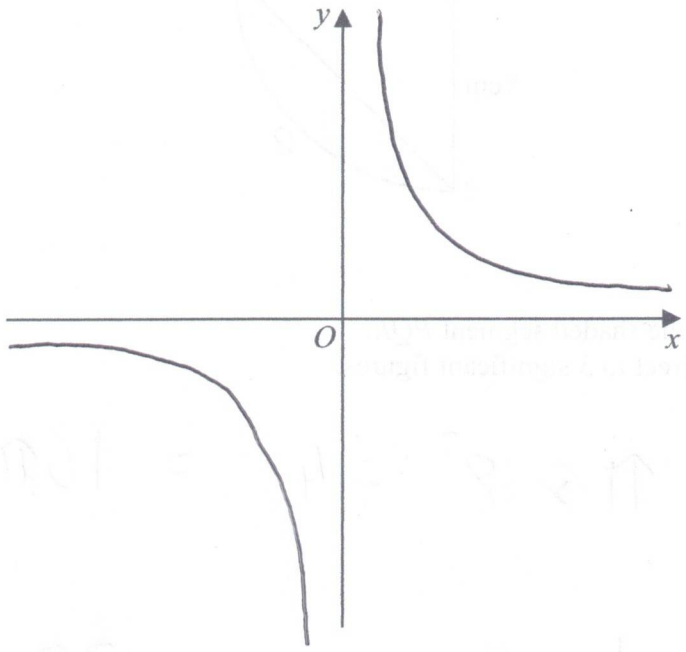
$\triangle = \frac{1}{2} \times 8 \times 8 = 32 \text{ cm}^2$

$16\pi - 32 = 18.3$

..... cm^2

(Total for Question 27 is 4 marks)

28 Sketch the graph of $y = \frac{1}{x}$



(Total for Question 28 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS