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.

0.45

(Total for Question 1 is 1 mark)

2 Write down two factors of 35

5, 7

(Total for Question 2 is 1 mark)

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

10.45 am

(Total for Question 3 is 1 mark)

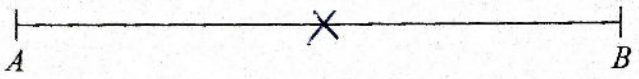
4 Work out $\frac{1}{6}$ of 66

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)

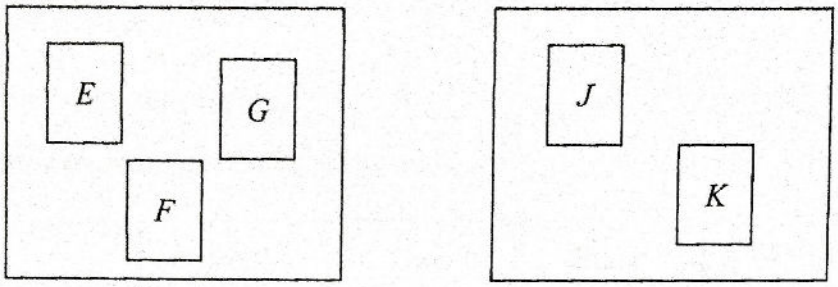
(b) Simplify $4x + 3 - x + 5$

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 ER FJ FK GJ GK

(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

Show that Sandy pays more than 2500 dollars on Monday.

$2 \times 600 = 1200$ $7 \times 120 = 840$ $2 \times 250 = 500$

$1200 + 840 + 500 = 2540$

$2540 > 2500$

(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 ÷ 4.85 = 61.8...

61

(Total for Question 10 is 3 marks)

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

3 hours = 180 minutes

196 − 180 = 16

.....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.

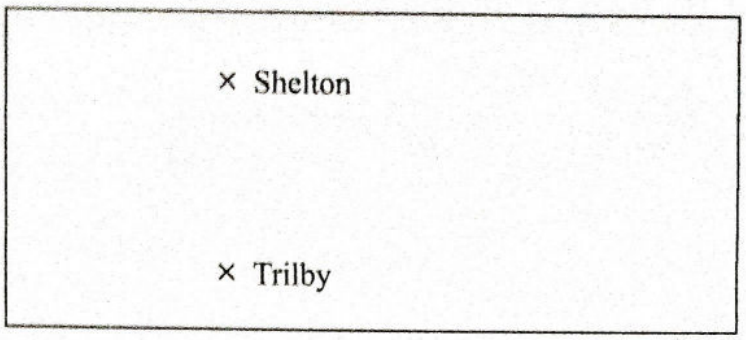
$S = \frac{D}{T}$ $S = \frac{x}{2}$

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

(1)

(Total for Question 11 is 3 marks)

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 cm = 50 km

.....50..... kilometres
(2)

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

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

5 × 1200 = 6 000 cm

6000 cm = 60 m

.....60..... metres
(2)

(Total for Question 12 is 4 marks)

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.

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

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.

$100 - 20 = 80$

~~80 : 20~~

20 : 80

20 : 80

(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.

$1 - \frac{13}{15} = \frac{2}{15}$

$\frac{2}{15} \times 600 = 80$

£ 80 million

(Total for Question 14 is 3 marks)

15 Jenna measures all the angles around a point.

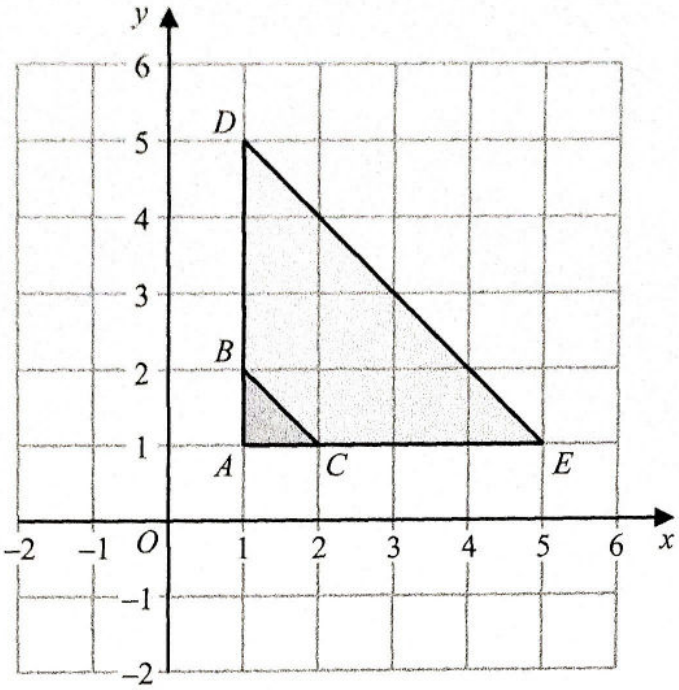
Her results are 23°, 145°, 23° and 69°

Explain why these results cannot be true.

They do not add to 360°

(Total for Question 15 is 1 mark)

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 $2(5x - 4) = 21$

$10x - 8 = 21$

$10x = 29$

$x = 2.9$

$x =$ 2.9

(3)

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

$20e^3f^4$

(2)

(Total for Question 17 is 7 marks)

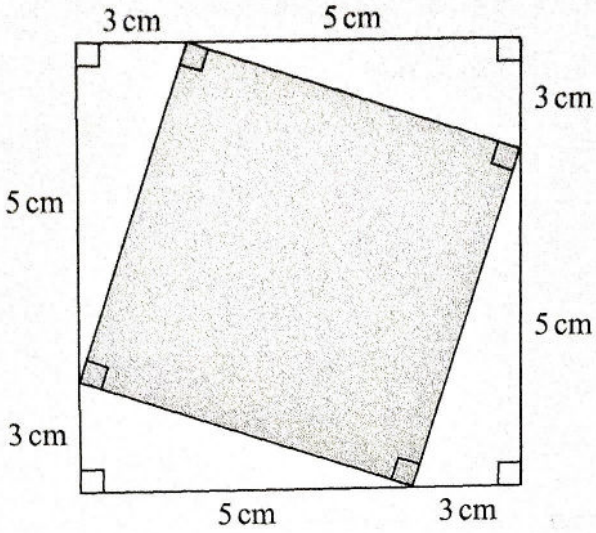
18 Change 1 m^2 into cm^2

$1 \times 100 \times 100 = 10\,000$

10 000 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.

area of the square: $8 \times 8 = 64$

area of one triangle: $0.5 \times 3 \times 5 = 7.5$

area of all triangles: $7.5 \times 4 = 30$

shaded area: $64 - 30 = 34$

34 cm²

(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	

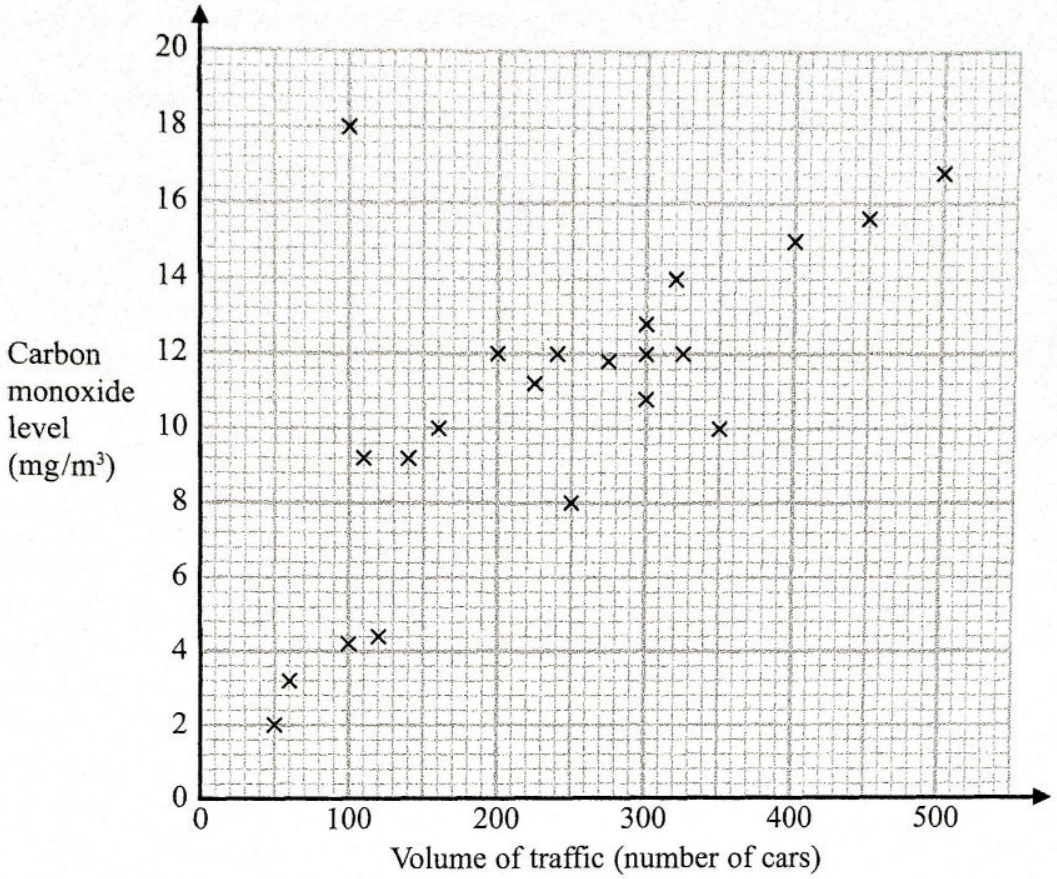
Draw a stem and leaf diagram for these heights.

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

Key: 2 | 5 → 25cm

(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.

13 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.

No, as this point should be disregarded from the general trend

(1)

(Total for Question 21 is 4 marks)

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.

6000 ÷ (9 + 1 + 2) = 500

1 part = 500g

2 parts = Cheese = 1000g

1000 ÷ 175 = 5.71...

5.71... × 2.25 = 12.857...

£ 12.86

(Total for Question 22 is 4 marks)

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

450 000

(1)

(b) Write 0.007 in standard form.

7×10^{-3}

(1)

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

4.73×10^3

(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.
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.

B: 2.2 x 4.54 = 9.988 litres per minute

2400 ÷ 9.988 = 240.28...

2400 litres per 240.288346 minutes

A: 2400 ÷ 8 = 300

1 min 40 seconds = 1.6 mins / $1\frac{2}{3}$ mins

$1\frac{2}{3}$ x 300 = 500 mins

2400 litres per 500 minutes

500 − 240.28... = 259.7...

260 minutes

(Total for Question 24 is 4 marks)

25 The first four terms of a Fibonacci sequence are

$a \qquad 2a \qquad 3a \qquad 5a \qquad 8a$

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

Work out the value of a.

$3a + 5a = 8a$

$a + 2a + 3a + 5a + 8a = 228$

$19a = 228$

$a = 12$

$a = 12$

(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	0.5	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.

$1 - 0.05 - 0.15 = 0.8$

(2)

There are 18 blue counters in the bag.

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

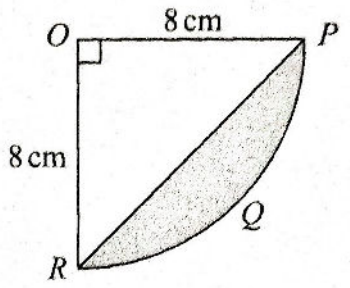
$18 \div 0.15 = 120$

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.

Triangle: $\frac{1}{2} \times 8 \times 8 = 32$

Circle: $\pi \times 8 \times 8 = 201.06...$

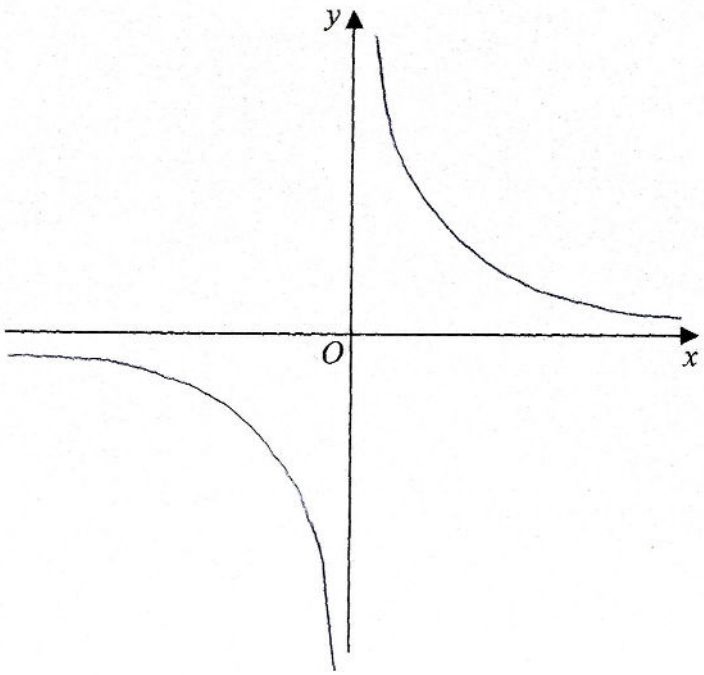
Sector: $\frac{201.06}{4} = 50.26548246$

$50.265... - 32 = 18.265...$

18.3 cm²

(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