

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

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## 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  $\pi$  button, take the value of  $\pi$  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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**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.

.....  
**(Total for Question 1 is 1 mark)**

- 2 Write down two factors of 35

.....  
**(Total for Question 2 is 1 mark)**

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

..... am

**(Total for Question 3 is 1 mark)**

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

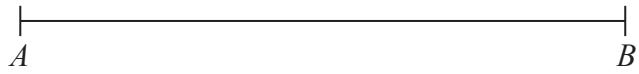
.....

**(Total for Question 4 is 1 mark)**



- 5  $AB$  is a straight line.

Mark with a cross ( $\times$ ) the midpoint of  $AB$ .



(Total for Question 5 is 1 mark)

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

.....  
(1)

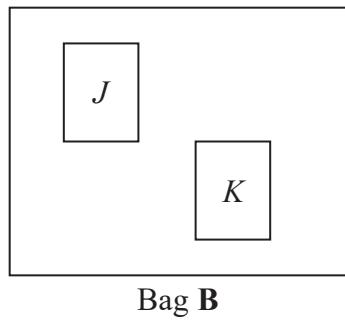
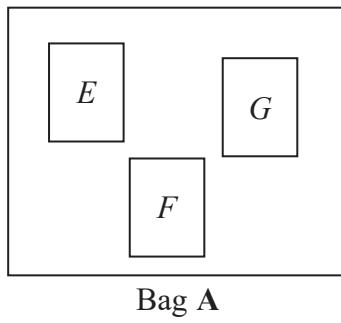
- (b) Simplify  $4x + 3 - x + 5$

.....  
(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.



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

List all the possible outcomes.

(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.

(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				
Not plastic				
Total				

(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.

(Total for Question 10 is 3 marks)



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

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

..... hours ..... 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.

..... miles per hour  
(1)

**(Total for Question 11 is 3 marks)**

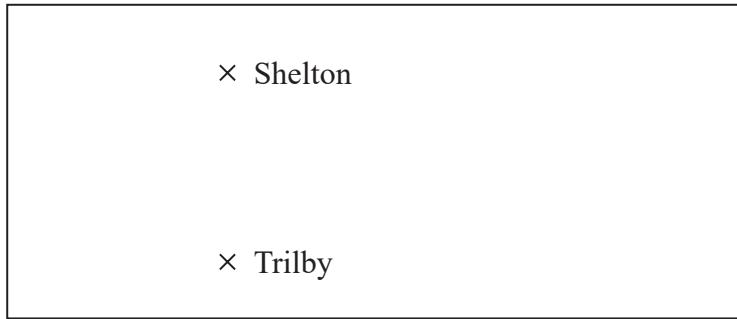
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12 The diagram shows two places on a map.



Scale: 1 centimetre represents 20 kilometres

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

..... kilometres  
(2)

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

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

..... 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.

.....%  
(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.

.....  
(2)

**(Total for Question 13 is 4 marks)**

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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.

£..... million

**(Total for Question 14 is 3 marks)**

15 Jenna measures all the angles around a point.

Her results are  $23^\circ$ ,  $145^\circ$ ,  $23^\circ$  and  $69^\circ$

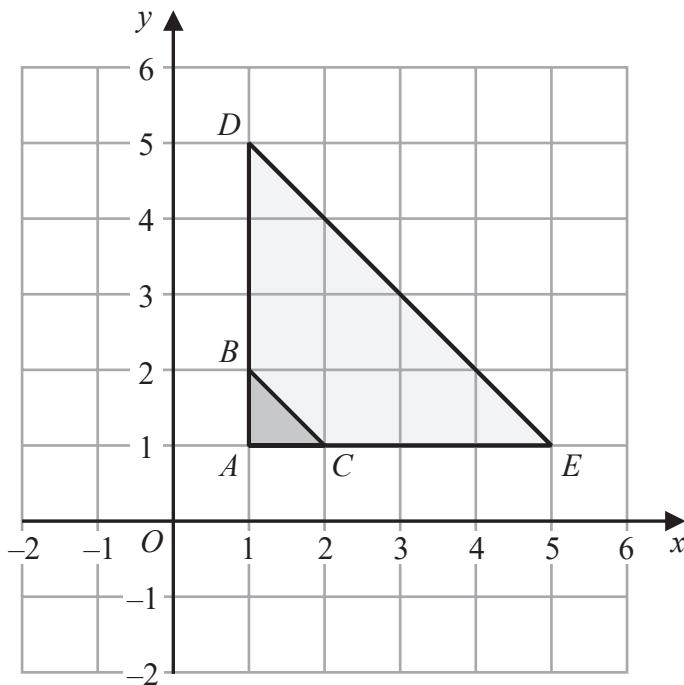
Explain why these results cannot be true.

**(Total for Question 15 is 1 mark)**



P 6 4 6 3 3 A 0 9 2 4

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



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

(Total for Question 16 is 2 marks)



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

.....  
(1)

(b) Factorise  $4a - 6$

.....  
(1)

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

$x =$  .....

(3)

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

.....  
(2)

**(Total for Question 17 is 7 marks)**

18 Change  $1\text{ m}^2$  into  $\text{cm}^2$

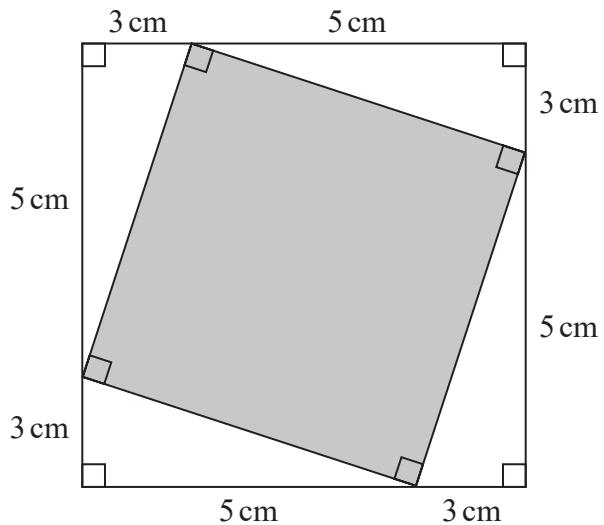
.....  $\text{cm}^2$

**(Total for Question 18 is 1 mark)**



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

**19** This diagram shows two squares.



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

(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.

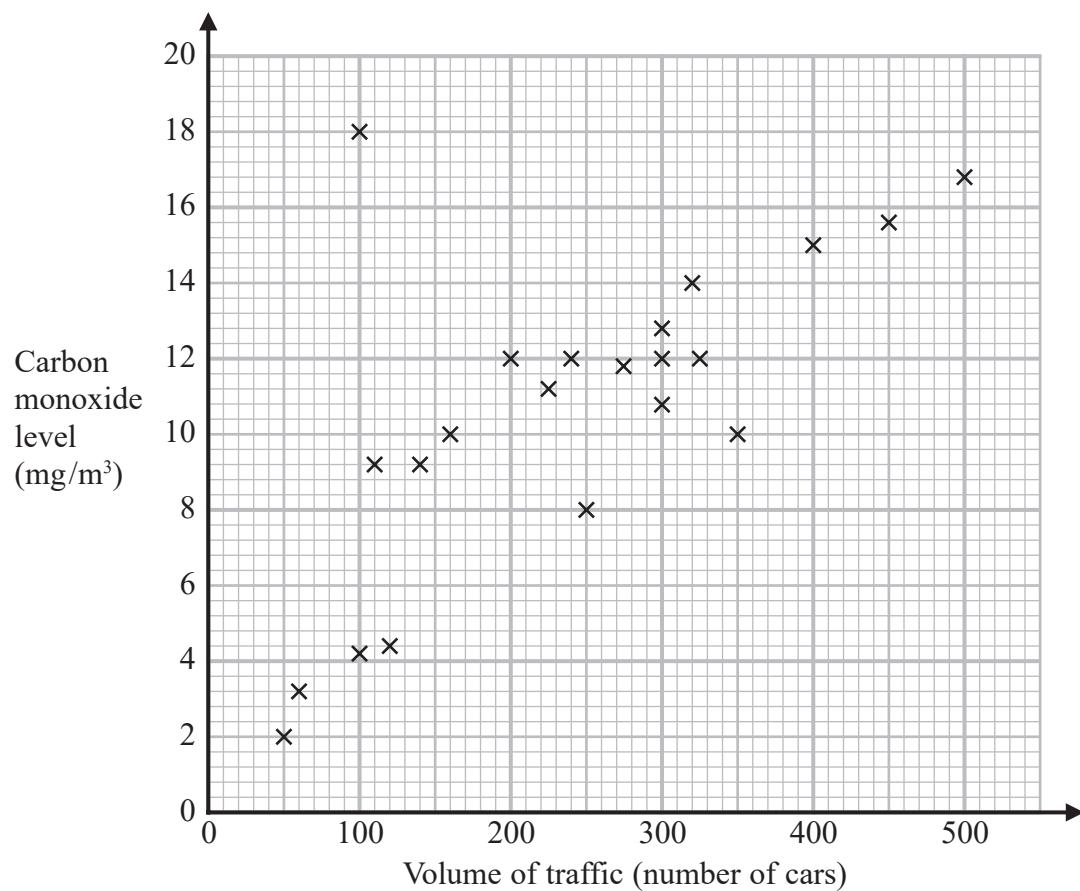


Key:

(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.

(....., .....)  
(1)

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

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

..... mg/m<sup>3</sup>  
(2)



Alfie says,

“Because there is an outlier, there is no correlation.”

- (c) Is Alfie correct?

You must give a reason for your answer.

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

**(Total for Question 21 is 4 marks)**



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

**22** Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

$$\text{weight of potato : weight of cheese : weight of onion} = 9 : 2 : 1$$

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.

£.....

**(Total for Question 22 is 4 marks)**



23 (a) Write  $4.5 \times 10^5$  as an ordinary number.

.....  
(1)

(b) Write 0.007 in standard form.

.....  
(1)

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

.....  
(2)

**(Total for Question 23 is 4 marks)**



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

**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.

..... minutes

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



25 The first four terms of a Fibonacci sequence are

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

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

Work out the value of  $a$ .

(Total for Question 25 is 3 marks)



P 6 4 6 3 3 A 0 1 9 2 4

- 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	.....	.....

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

- (a) Complete the table.

(2)

There are 18 blue counters in the bag.

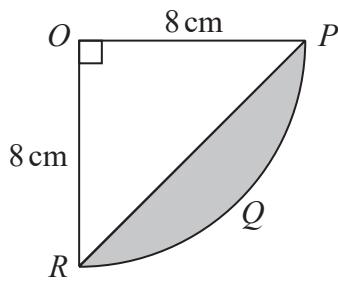
- (b) Work out the total number of counters in the bag.

.....  
(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.

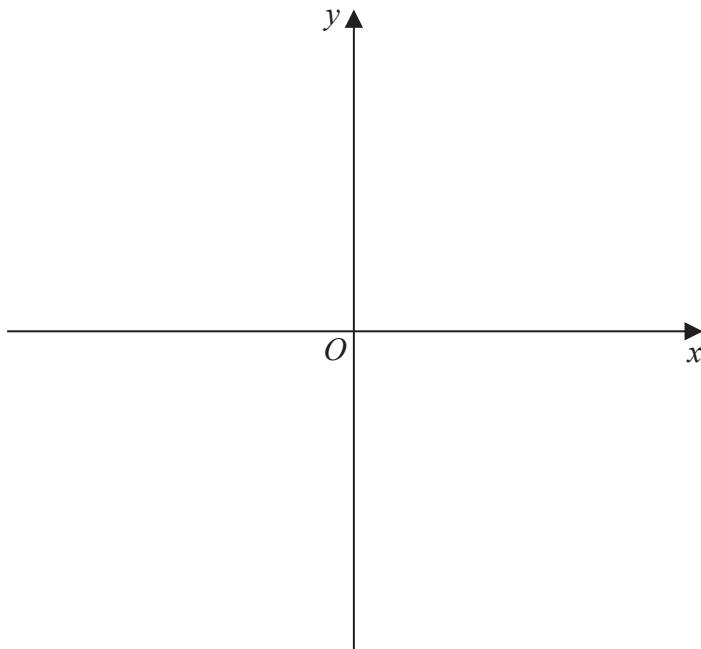
Work out the area of the shaded segment  $PQR$ .

Give your answer correct to 3 significant figures.

.....  $\text{cm}^2$

(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**



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