

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 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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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.

$$45\% = 0.45$$

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?

$$8.05 \text{ am} \xrightarrow{+2 \text{ hr}} 10:05 \xrightarrow{+40} 10:45 \text{ am}$$

10:45

am

(Total for Question 3 is 1 mark)

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

$$\frac{1}{6} \text{ of } 66 = 66 \div 6 = 11$$

11

(Total for Question 4 is 1 mark)

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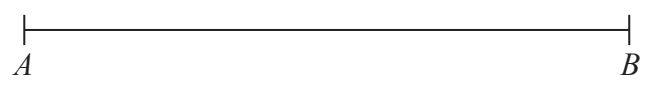
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5 AB is a straight line.

Mark with a cross (X) the midpoint of AB .



(Total for Question 5 is 1 mark)

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

Handwritten red squiggle

$4ab$

(1)

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

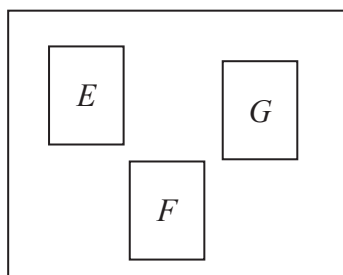
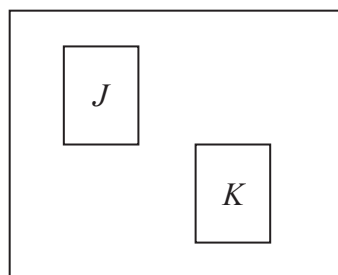
$3x + 8$

(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.

.....

.....

.....

(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

$$£4.85 \approx £5$$

Work out the greatest number of books Corina can buy.

$$300 \div 4.85 = 61.85\dots$$

\therefore Corina can buy a maximum of 61 books

(Total for Question 10 is 3 marks)



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

60, 120, 180
1 2 3

..... 3 hours 16 minutes
(2)

A train travels x miles in 2 hours.

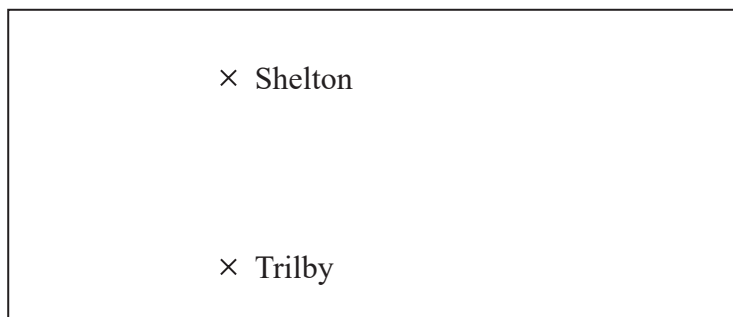
(b) Write down an expression, in terms of x , for the average speed of the train.

distance = x miles
time = 2 hours
Speed = $\frac{\text{distance}}{\text{time}} = \frac{x}{2}$ $\frac{x}{2}$ 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?

..... 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.

$$\begin{array}{l} L : W \\ 2 : 3 \end{array}$$

$$\text{Total No. of parts} = 2 + 3 = 5$$

$$\% \text{ area that is land} = \frac{2}{5} \times 100$$

$$\frac{40}{(2)} \%$$

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.

$$\begin{array}{l} \text{Land is } 20\% \\ \text{Water is } 80\% \end{array}$$

$$L : W$$

$$20 : 80$$

$$1 : 4$$

$$\frac{1:4}{(2)}$$

(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.

$\frac{13}{15}$ building

The rest of the cost was for the land.

$\frac{2}{15}$ for land

Work out the cost of the land.

$\frac{2}{15}$ of 600 million.

$$\frac{600,000,000}{15}$$

$\frac{1}{15}$ is 40 million

$$\frac{200,000,000}{5}$$

$\frac{2}{15}$ is 80 million

40 mi

£ 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°

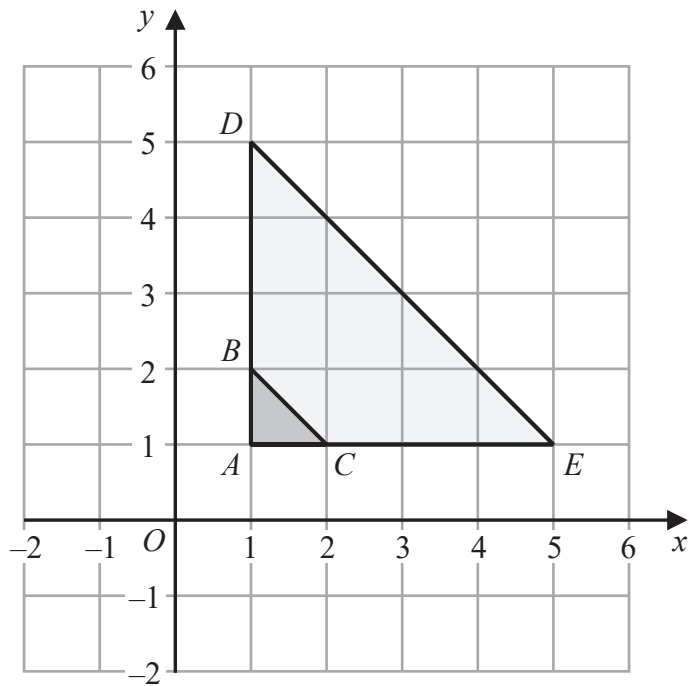
Explain why these results cannot be true.

.....
.....
.....

(Total 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 .

.....

.....

.....

(Total for Question 16 is 2 marks)

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

$$y^2 + 5y$$

(1)

(b) Factorise $4a - 6$

$$4a - 6 = 2(2a - 3)$$

$$2(2a - 3)$$

(1)

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

$$10x - 8 = 21$$

$$10x = 29$$

$$x = \frac{29}{10} = 2.9$$

$$x = 2.9$$

(3)

(d) Simplify $4e^2f \times 5ef^3 = 20e^3f^4$

$$20e^3f^4$$

(2)

(Total for Question 17 is 7 marks)

18 Change 1 m^2 into cm^2

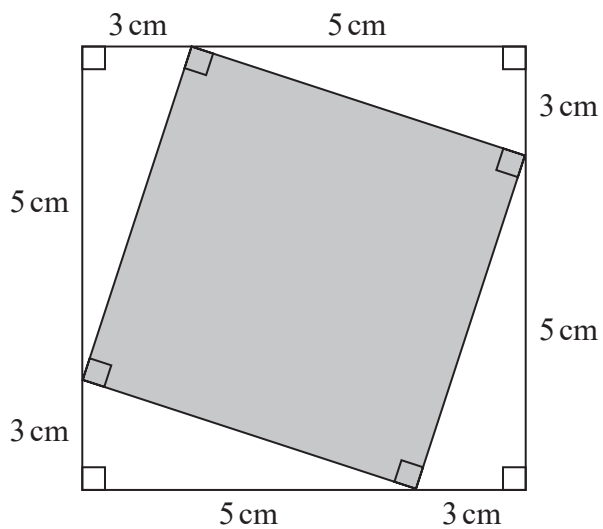
..... cm^2

(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)

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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.

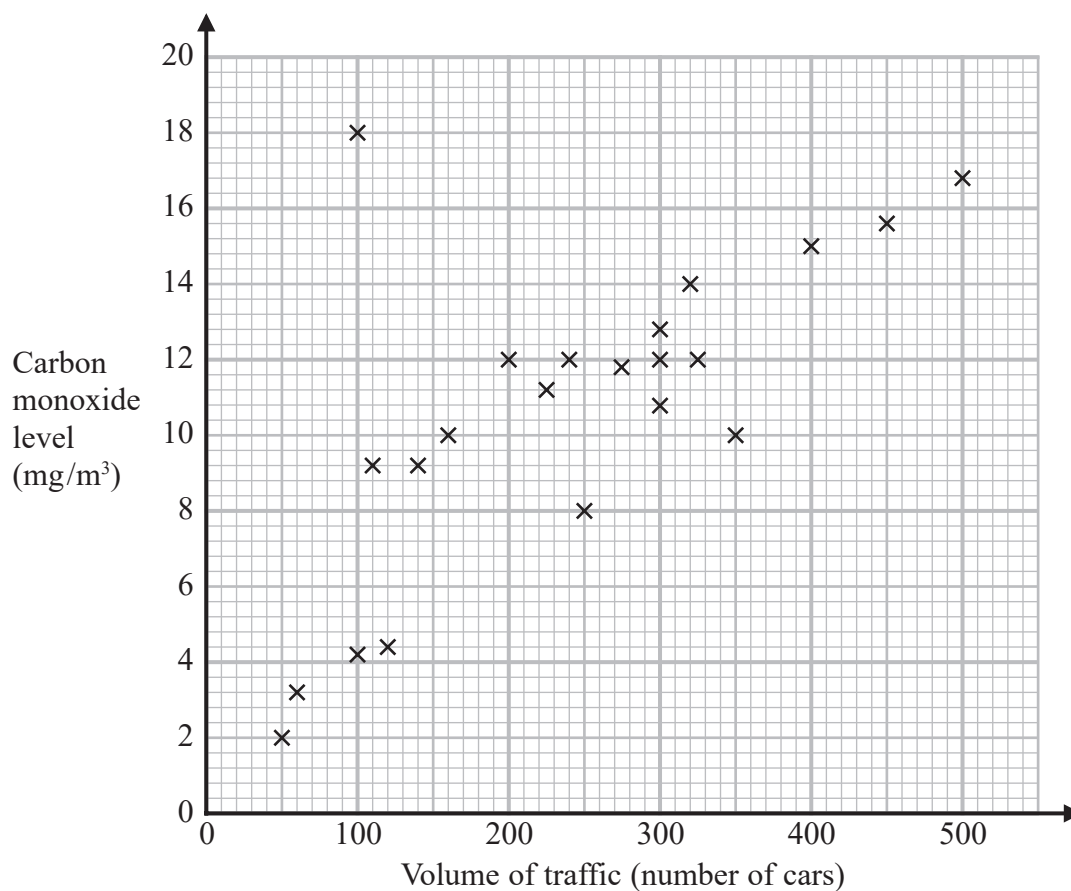
1	5
2	0
3	

Key: $2/0 = 20$

(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/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.

(1)

(Total for Question 21 is 4 marks)

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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

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)

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23 (a) Write 4.5×10^5 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)



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)



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25 The first four terms of a Fibonacci sequence are

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

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)



- 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)

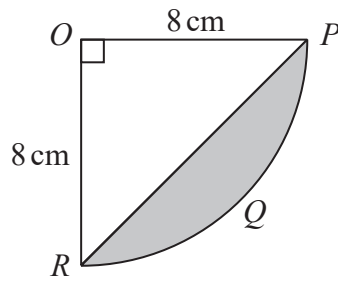


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27 The diagram shows a sector $OPQR$ of a circle, centre O and radius 8 cm.



OPR is a triangle.

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

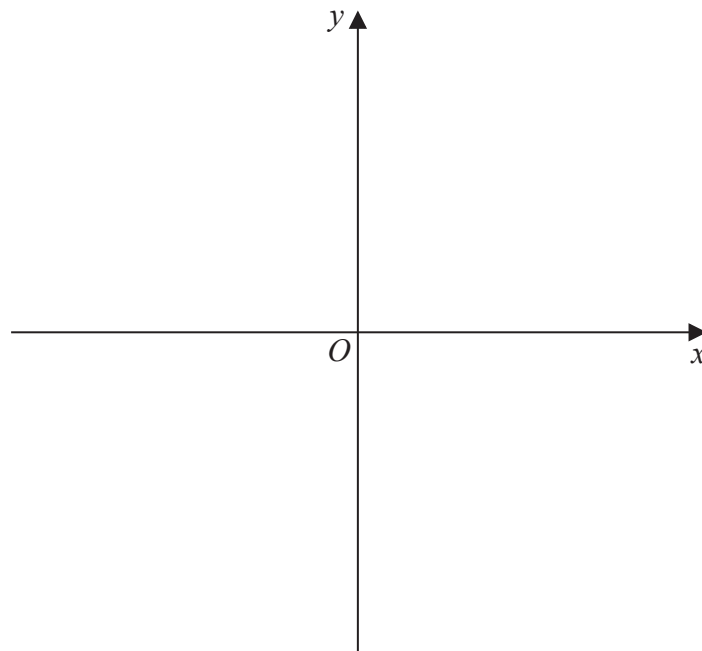
..... cm²

(Total for Question 27 is 4 marks)



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

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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