

Write your name here

Surname	Other names
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Pearson Edexcel
Level 1/Level 2 GCSE (9 - 1)

Centre Number	Candidate Number
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Mathematics

Paper 2 (Calculator)

Higher Tier

Mock Set 1 – Autumn 2016 Time: 1 hour 30 minutes	Paper Reference 1MA1/2H
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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.*
- **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.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



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

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Turn over ►

PEARSON

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 There are 60 students at a college.

20 students study both French and Spanish.

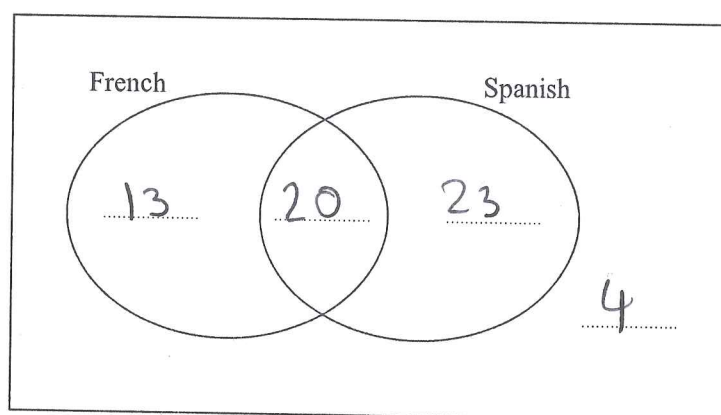
13 students study French but not Spanish.

A total of 43 students study Spanish.

- (a) Complete the Venn diagram for this information.

$$\begin{array}{r} 43 \\ 20 - \\ \hline 23 \end{array}$$

$$\begin{array}{l} 60 - \\ (13 + 20 + 23) \\ 60 - 56 = 4 \end{array}$$



(3)

One of the students at the college is to be selected at random.

- (b) Write down the probability that this student studies neither French nor Spanish.

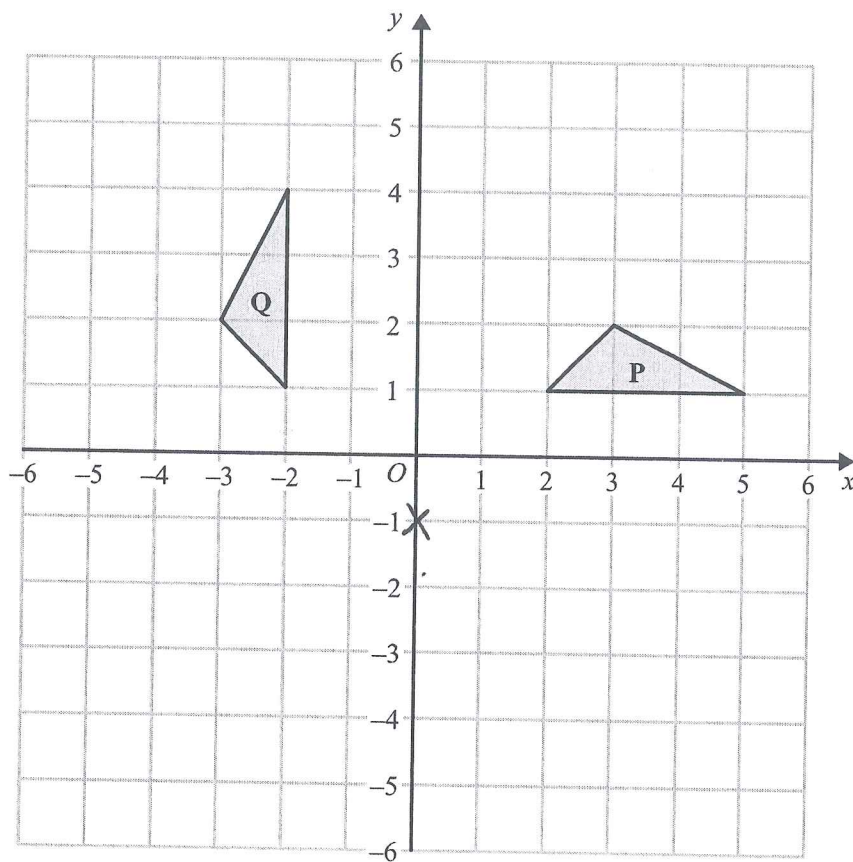
$$\frac{4}{60}$$

(1)

(Total for Question 1 is 4 marks)



2



Describe fully the single transformation that maps triangle P onto triangle Q.

Rotation 90° ($\frac{1}{4}$ turn) anti-clockwise, centre $(0, -1)$

(Total for Question 2 is 2 marks)



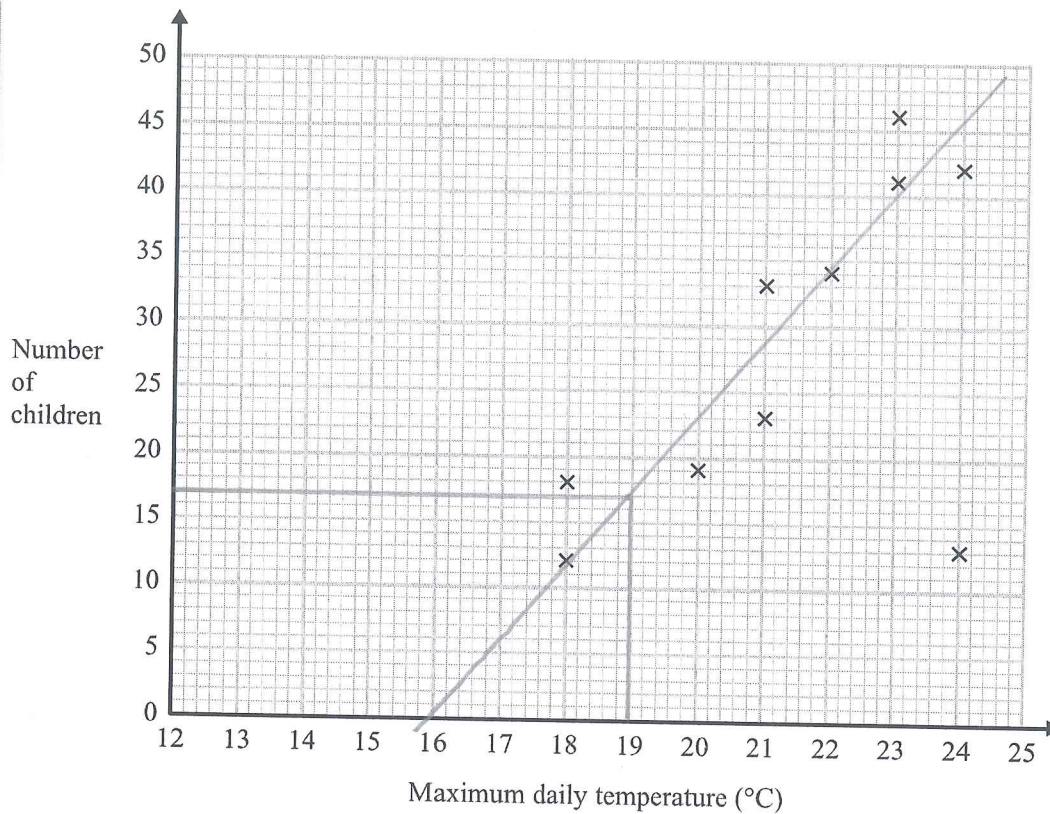
S 5 2 6 2 6 A 0 3 2 0

3

Turn over ►

- 3 Jean records the maximum daily temperature each day for 10 days.
She also records the number of children going to a paddling pool for each of these days.

She draws this scatter graph for her information.



Jean's information for one of these days is an outlier on the scatter graph.

- (a) Give a possible reason for this.

The children went to school to do their maths exam

(1)

- (b) What type of correlation does the scatter graph show?

positive

(1)



On the 11th day, the maximum daily temperature was 19°C .

- (c) Write down an estimate for the number of children going to the paddling pool on the 11th day.

estimate using line of best fit

17

(1)

It would not be sensible to use the scatter graph to predict the number of children going to the paddling pool on a day when the maximum daily temperature was 13°C .

- (d) Give a reason why.

Extrapolation is unreliable, outside the range of the data

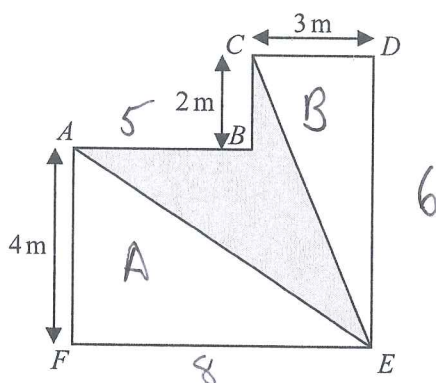
(1)

(Total for Question 3 is 4 marks)



S 5 2 6 2 6 A 0 5 2 0

- 4 The diagram shows a shape $ABCDEF$.



All the corners of the shape are right angles.
The perimeter of the shape is 28 m.

Work out the area of $ABCE$ shown shaded on the diagram.

Sides : $DE = 4 + 2 = 6$

Remaining = $28 - (4 + 6 + 2 + 3) = 13$

$FE = AB + 3$

$FE + AB = 13$

$\therefore FE = 8, AB = 5$

Area A = $\frac{4 \times 8}{2} = 16$

Area B = $\frac{3 \times 6}{2} = 9$

Total area = $8 \times 4 + 2 \times 3 = 38$

Area Shaded = $38 - 16 - 9 = 13$

$13m^2$

(Total for Question 4 is 5 marks)



5 Solve the simultaneous equations

$$\begin{aligned} 4x + y &= 10 & \textcircled{1} \\ x - 5y &= 13 & \textcircled{2} \end{aligned}$$

$$\textcircled{1} \times 5$$

$$\textcircled{2} + \textcircled{5}$$

$$20x + 5y = 50 \quad \textcircled{3}$$

$$21x = 63$$

$$x = 3$$

Sub into $\textcircled{2}$

$$3 - 5y = 13$$

$$3 = 13 + 5y$$

$$-10 = 5y$$

$$y = -2$$

$$x = 3$$

$$y = -2$$

(Total for Question 5 is 3 marks)



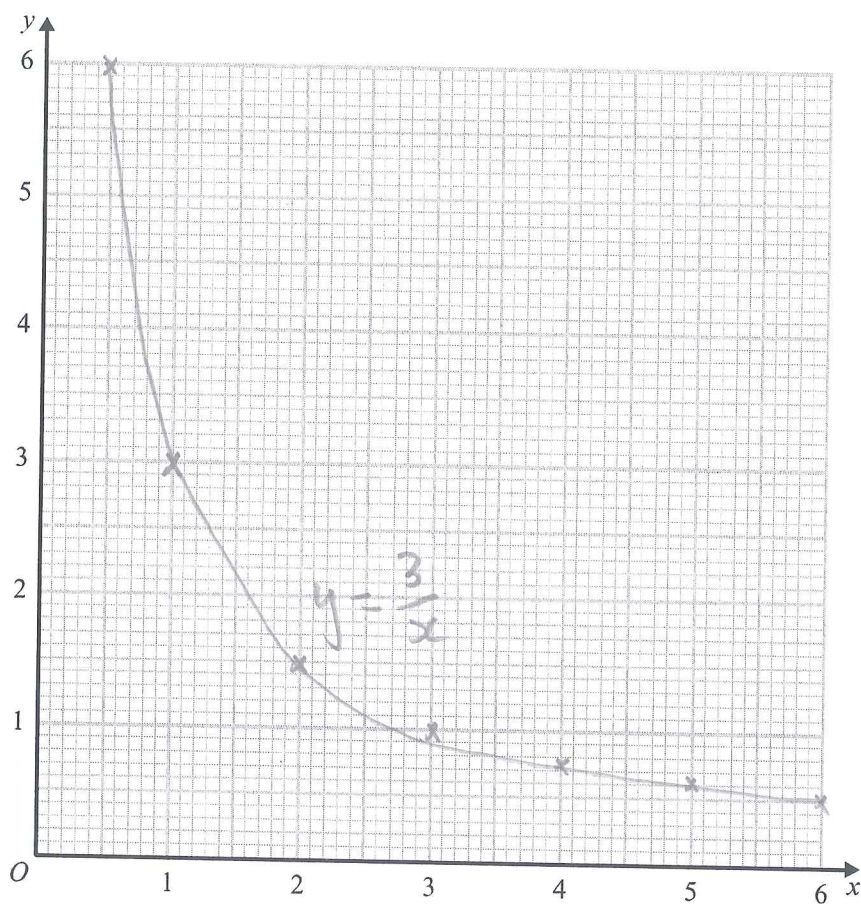
S 5 2 6 2 6 A 0 7 2 0

- 6 (a) Complete the table of values for $y = \frac{3}{x}$

x	0.5	1	2	3	4	5	6
y	6	3	1.5	1	0.75	0.6	0.5

(2)

- (b) On the grid, draw the graph of $y = \frac{3}{x}$ for values of x from 0.5 to 6



(2)

(Total for Question 6 is 4 marks)



- 7 Gina finds out the price of a CD box set in three different countries.

The price is

£98 in the UK

\$134.99 in the USA

€139.99 in Germany

The exchange rates are

£1 = \$1.43

€1 = £0.73

Gina wants to pay the cheapest price for the box set.

- (a) From which country should Gina buy the box set?
You must show how you get your answer.

$$\begin{array}{llll} \$ \rightarrow £ & 134.99 \div 1.43 & = 94.3986014 & \text{USA} \\ € \rightarrow £ & 139.99 \times 0.73 & = 102.1927 & \text{Germany} \end{array}$$

Cheaper in the USA at £94.40

(3)

Gina lives in the UK.

- (b) Why might your answer to (a) **not** be the best country for Gina to buy the box set from?

Shipping, customs duty

(1)

(Total for Question 7 is 4 marks)

- 8 Given that $a:b = 8:5$ and $b:c = 3:4$

find the ratio $a:b:c$

Give your answer in its simplest form.

$$\begin{array}{ccc} 8:5 & & 3:4 \\ \swarrow \times 3 & & \searrow \times 5 \\ 24:15 & : & 20 \end{array}$$

(Total for Question 8 is 3 marks)



- 9 (a) Write 3.6×10^4 as an ordinary number.

36000
(1)

- (b) Work out the value of $(2.8 \times 10^{-2}) \div (4.7 \times 10^5)$
Give your answer in standard form correct to 3 significant figures.

5.96×10^{-8}
(2)

(Total for Question 9 is 3 marks)

- 10 The table shows pairs of values of x and y

x	5	6
y	400	576

- (i) Tick the correct statement below.

$y \propto x$

$y \propto x^2$ ✓

$y \propto x^3$

- (ii) Write a formula for y in terms of x

$$\begin{aligned} y &\propto x^2 \\ y &= kx^2 \\ 400 &= k5^2 \\ 400 &= 25k \\ k &= 16 \end{aligned}$$

$$y = 16x^2$$

(Total for Question 10 is 4 marks)

