

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)**

**Wednesday 14 June 2023**

Morning (Time: 1 hour 30 minutes)      Paper reference **1MA1/3F**

**Mathematics**  
**PAPER 3 (Calculator)**  
**Foundation Tier**  
**Shadow Set 1**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, Formulae Sheet (enclosed). 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.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Write the number five thousand nine hundred and seventeen in figures.

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

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- 2 Write  $\frac{7}{10}$  as a percentage.

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

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- 3 Simplify  $q + q + q + q$

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

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- 4 Change 4 kilograms into grams.

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

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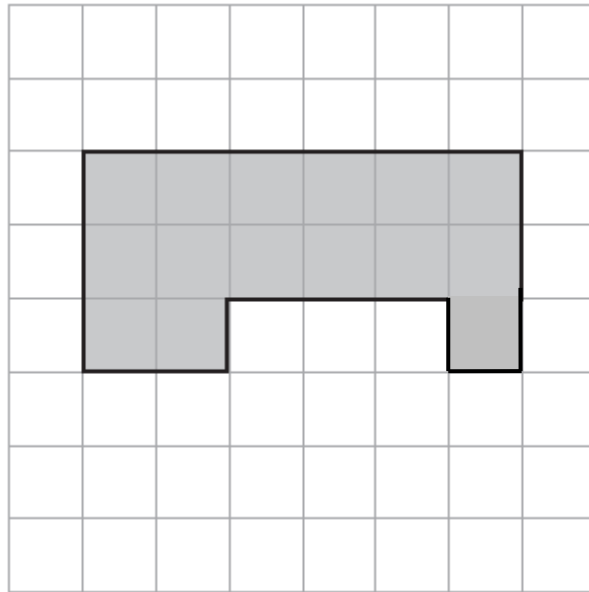
- 5    -2          5          -3          4          1

Write these numbers in order of size.  
Start with the smallest number.

.....  
**(Total for Question 5 is 1 mark)**

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6 The diagram shows a shape on a centimetre grid.



(a) Find the perimeter of the shape.

..... cm  
**(1)**

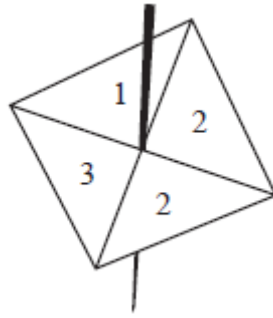
(b) Find the area of the shape.

..... cm<sup>2</sup>  
**(1)**

**(Total for Question 6 is 2 marks)**

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7 Here is a 4-sided spinner.



Samina spins the spinner once.

(a) Choose the word that best describes the probability that the spinner lands on 1

impossible	unlikely	evens	likely	certain
------------	----------	-------	--------	---------

.....  
(1)

(b) Choose the word that best describes the probability that the spinner lands on a number greater than 3

impossible	unlikely	evens	likely	certain
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.....  
(1)

Rosanna rolls a biased dice once.

The probability that she gets the number 6 is 0.2

(c) Work out the probability that Rosanna does **not** get the number 6

.....  
(1)

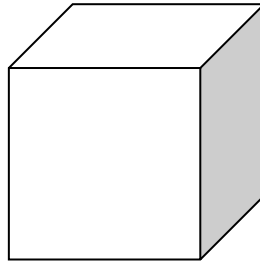
**(Total for Question 7 is 3 marks)**

8 A quadrilateral has 4 straight sides and one pair of parallel sides .

(a) Write down the mathematical name of this quadrilateral.

.....  
(1)

The diagram shows a solid shape.



(b) Write down the mathematical name of this shape.

.....  
(1)

**(Total for Question 8 is 2 marks)**

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9 The table shows the number of films watched by four people in one week.

Person	Number of films
Kim	2
Ali	5
Sam	9
Belle	4

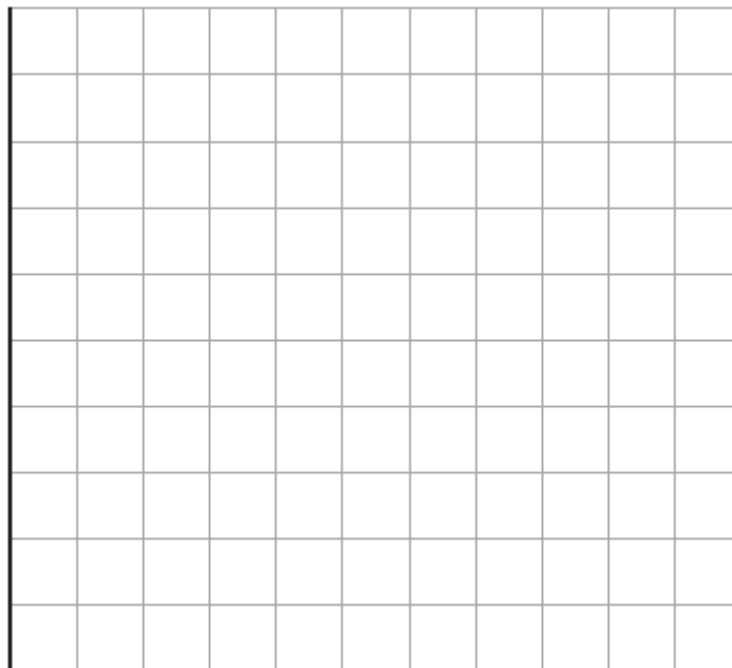
(a) Work out the mean number of films.

.....  
(2)

(b) Find the range.

.....  
(1)

(c) On the grid, draw a bar chart to show the information in the table.



(3)

(Total for Question 9 is 6 marks)

- 10** Wendy begins cycling at 7 30 a.m.  
She cycles for 2 hours and 45 minutes.  
Wendy then rests for 35 minutes.  
She then cycles for 80 minutes to a train station.  
Does Wendy get to the train station before 12 noon?  
You must show how you get your answer.

**(Total for Question 10 is 4 marks)**

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**11** Gary thinks of a number.

He multiplies his number by 3 and then subtracts 11  
His answer is 40

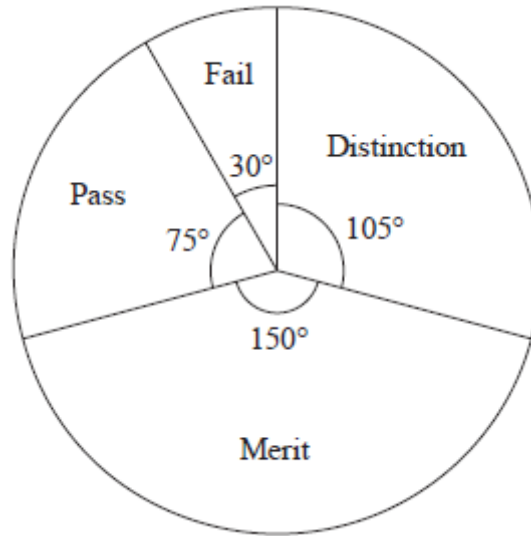
What number did Gary think of?

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

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- 12 Some students took a piano exam.  
The pie chart shows information about the grades the students got.



- (a) Write down the modal grade.

.....  
(1)

30 students got merit.

- (b) Work out the total number of students who took the piano exam.

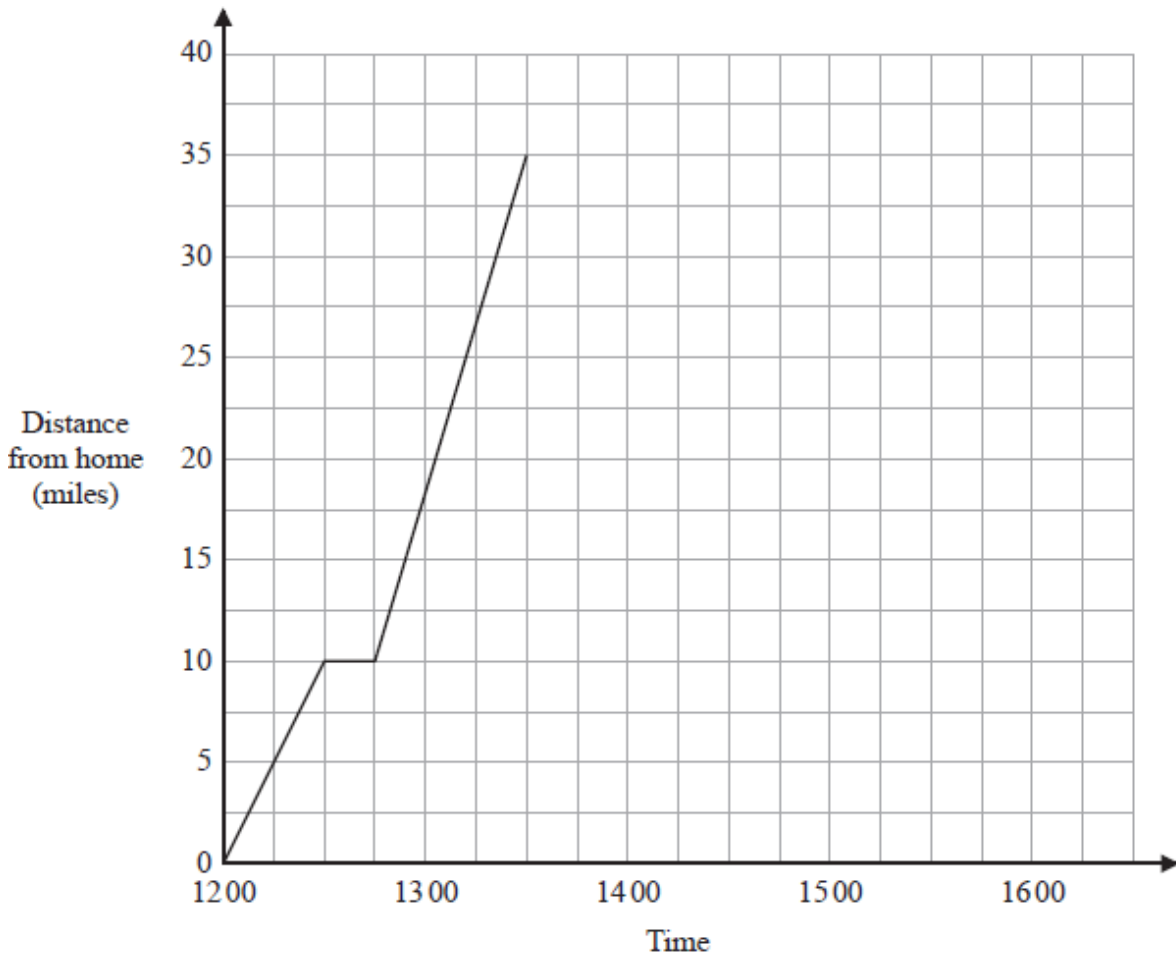
.....  
(3)

**(Total for Question 12 is 4 marks)**

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13 Rosalind drove from her home to a hospital.

Here is a travel graph for her journey.



Rosalind stopped at a shop on her way to the hospital.

(a) (i) How many minutes did Rosalind take to drive to the shop?

..... minutes  
(1)

(ii) Write down the distance from Rosalind's home to the shop.

..... miles  
(1)

Rosalind stayed at the hospital for 1 hour.

She then drove home without stopping.

Rosalind arrived home at 16 15

(b) On the grid, complete the travel graph.

(2)

(c) Work out the average speed for the journey from the hospital to Rosalind's home.

..... miles per hour

(1)

**(Total for Question 13 is 5 marks)**

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**14** 280 exercise books cost £70

320 pens cost £110

An exercise book is cheaper than a pen.

How much cheaper?

Give your answer in pence correct to 1 decimal place.

.....p

**(Total for Question 14 is 4 marks)**

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**15** There are only blue beads and yellow beads in a box.

number of blue beads : number of yellow beads = 2 : 3

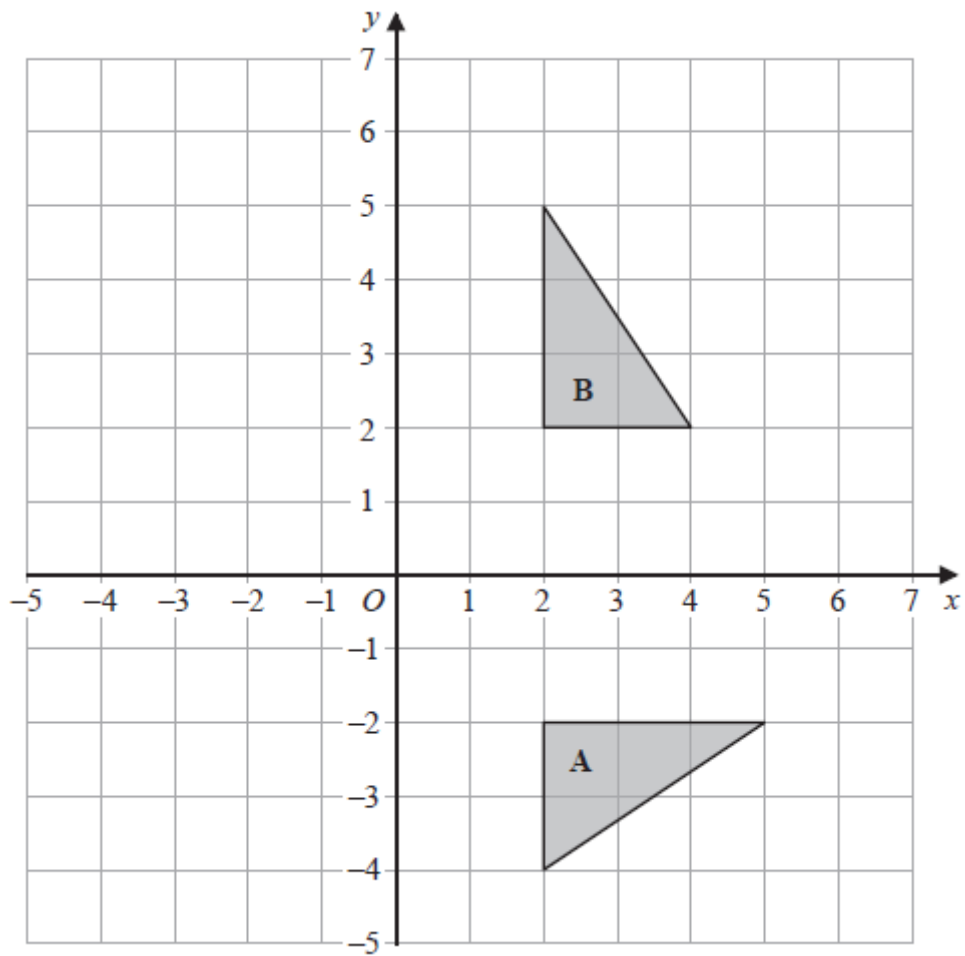
There are 42 blue beads in the box.

Work out the total number of beads in the box.

.....  
**(Total for Question 15 is 2 marks)**

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16



Describe fully the single transformation that maps shape **B** onto shape **A**.

.....

.....

.....

**(Total for Question 16 is 2 marks)**

---

17 The diagram shows the position of a phone mast  $T$ .



Phone mast  $P$  is 35 km from phone mast  $T$  on a bearing of  $105^\circ$

Mark the position of phone mast  $P$  with a cross ( $\times$ ).

Use a scale of 1 cm to 5 km.

**(Total for Question 17 is 2 marks)**

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**18** Solve  $5(3x - 7) = 40$

$x = \dots\dots\dots$

**(Total for Question 18 is 3 marks)**

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**19** Julia invests £5000 for 4 years at  $S$  % simple interest per year.  
At the end of the 4 years, Julia has received a total of £700 in interest.  
Work out the value of  $S$ .

$S = \dots\dots\dots$

**(Total for Question 19 is 3 marks)**

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**20** (a) Simplify  $(k^3)^4$

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

(b) Simplify  $y^6 \times y^9$

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

(c) Expand  $5m^2(m^2 + 2m)$

.....  
**(2)**

**(Total for Question 20 is 4 marks)**

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**21** Jenny wants to know how many sandwiches she will need for 550 people at a meeting.

Each person who eats sandwiches will eat 3 sandwiches.

2 slices of bread are needed for each sandwich.

Jenny assumes 76% of the people will eat sandwiches.

(a) Using this assumption, work out the number of slices of bread Jenny needs.

Give your answer correct to the nearest hundred slices.

..... slices

**(4)**

Jenny's assumption is wrong.

68% of the people will eat sandwiches.

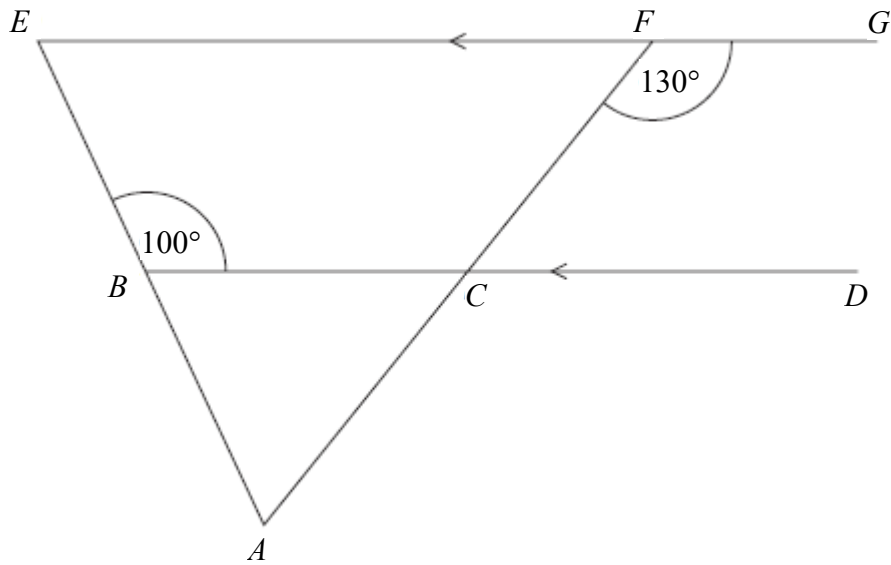
(b) How does this affect your answer to part (a)?

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

**(1)**

**(Total for Question 21 is 5 marks)**

- 22 *ACF* and *ABE* are straight lines.  
*EFG* and *BCD* are parallel lines.



Show that triangle *ABC* is isosceles.  
Give a reason for each stage of your working.

**(Total for Question 22 is 5 marks)**

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**23** It takes 24 hours for 9 identical pumps to fill a swimming pool.

How many hours would it take 15 of these pumps to fill another swimming pool of the same size?

..... hours

**(Total for Question 23 is 2 marks)**

---

24  $P$  and  $Q$  are numbers such that

$$P = 2^3 \times 3^5 \times 5$$

$$Q = 3^2 \times 5^3$$

(a) Find the highest common factor (HCF) of  $P$  and  $Q$ .

.....  
(1)

(b) Find the lowest common multiple (LCM) of  $P$  and  $Q$ .

.....  
(2)

**(Total for Question 24 is 3 marks)**

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25 Sludge leaks from a pipe at a constant rate of  $8.7 \text{ m}^3/\text{s}$

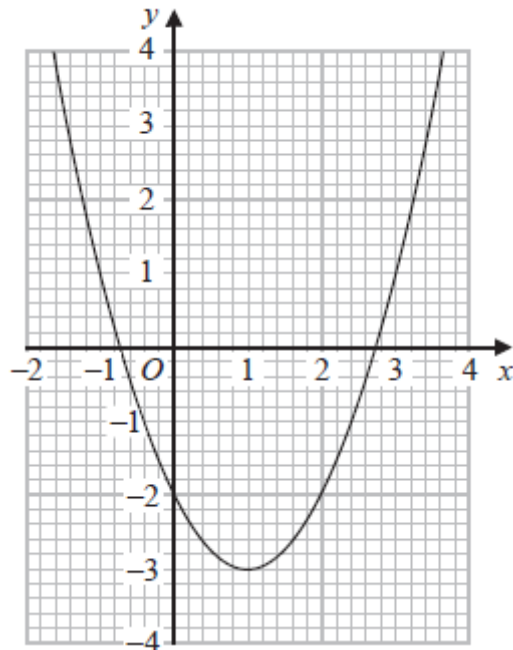
How many hours does it take for  $98\,310 \text{ m}^3$  of sludge to leak from the pipe?  
Give your answer correct to the nearest hour.

..... hours

**(Total for Question 25 is 3 marks)**

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26 Here is the graph of  $y = x^2 - 2x - 2$



(a) Write down the coordinates of the turning point on the graph of  $y = x^2 - 2x - 2$

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

(b) Write down an estimate for one of the roots of  $x^2 - 2x - 2 = -2$

.....  
(1)

**(Total for Question 26 is 2 marks)**

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27 A solid cube is made of stone.  
The stone has a density of  $3.5 \text{ g/cm}^3$   
The volume of the cube is  $216 \text{ cm}^3$   
Work out the mass of the cube.

..... g  
**(Total for Question 27 is 2 marks)**

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28 (a) Write  $(2.5 \times 10^3) : (7.5 \times 10^4)$  in the form  $1 : n$  where  $n$  is an integer.

.....  
**(2)**

(b) Write the following numbers in order of size.  
Start with the smallest number.

6125       $612\,500 \times 10^{-4}$        $6.125 \times 10^5$        $0.006\,125 \times 10^3$

.....  
**(2)**

**(Total for Question 28 is 4 marks)**

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**TOTAL FOR PAPER IS 80 MARKS**

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