

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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I declare this is my own work.

# GCSE MATHEMATICS

# F

Foundation Tier Paper 1 Non-Calculator

Tuesday 19 May 2020

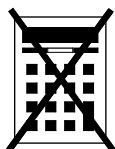
Morning

Time allowed: 1 hour 30 minutes

## Materials

For this paper you must have:

- mathematical instruments.



You must **not** use a calculator.

## Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

## Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

For Examiner's Use

Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24–25	
<b>TOTAL</b>	

## Advice

In all calculations, show clearly how you work out your answer.



Answer **all** questions in the spaces provided.

Do not write  
outside the  
box

**1** Here are some numbers.

5 5 8 13 14 15 17

Circle the range.

[1 mark]

5

11

12

13

**2** Circle the value of the digit 5 in 256 934

[1 mark]

5000

500 000

50

50 000

**3** Work out  $-2 - 5$

Circle your answer.

[1 mark]

-7

-3

3

7



- 4 What is 680 millimetres in centimetres?  
Circle your answer.

[1 mark]

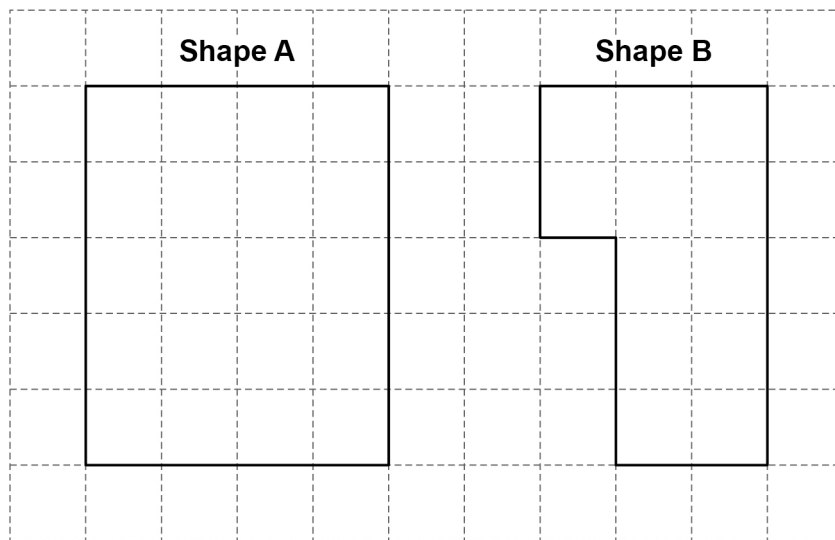
0.68 cm

6.8 cm

68 cm

6800 cm

5



Work out  $\frac{\text{area of Shape A}}{\text{area of Shape B}}$   
Give your answer in its simplest form.

[2 marks]

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Answer \_\_\_\_\_ : \_\_\_\_\_

Turn over ►



6 (a) Samir and Dan run a race.

Samir finishes in  $2\frac{1}{2}$  minutes.

Dan finishes in 130 seconds.

Complete the following sentence.

[2 marks]

\_\_\_\_\_ wins by \_\_\_\_\_ seconds.

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6 (b) Alice does a sponsored walk.

She starts from home on Monday at 8 am

She arrives back home 55 hours later.

Work out when she arrives back home.

[2 marks]

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Day \_\_\_\_\_

Time \_\_\_\_\_



7

Work out  $(43 \times 8) - (234 \div 6)$ **[3 marks]**

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Answer \_\_\_\_\_

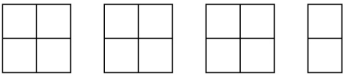
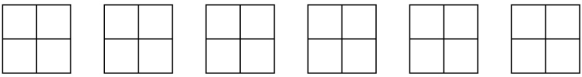
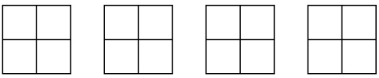
**Turn over for the next question**

7
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**Turn over ►**

- 8 Here is some information, by ticket type, about the number of people visiting a cinema one week.

Key:  represents 40 people

<b>Adults</b>	
<b>Students</b>	
<b>Children</b>	

- 8 (a) How many children visited the cinema?

[1 mark]

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Answer \_\_\_\_\_

- 8 (b) How many **more** students than adults visited the cinema?

[2 marks]

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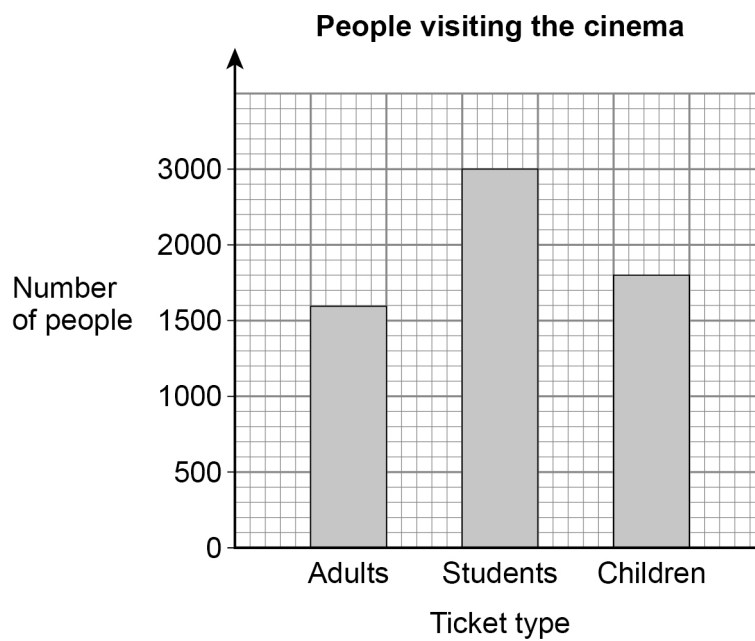
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Answer \_\_\_\_\_



- 8 (c) A bar chart is drawn to show the number of people visiting the cinema one month.

Ticket type	Number of people
Adults	1600
Students	3000
Children	1800



Give **one** criticism of the bar chart.

[1 mark]

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- 9** Harry will pay income tax if he earns more than £12 500 in a year.  
After 8 months he has earned a **total** of £7600  
For the rest of the year he earns £1200 each month.

Will he pay income tax?

You **must** show your working.

**[3 marks]**

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- 10**  $x$  is a 2-digit whole number.

How many digits does the number  $10x$  have?

Circle your answer.

**[1 mark]**

cannot tell

2

3

4





11 (a) Circle the answer to  $50 \times 0.2$

[1 mark]

1

10

100

1000

11 (b) Work out  $3.65 \div 5$   
Give your answer as a decimal.

[2 marks]

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Answer \_\_\_\_\_

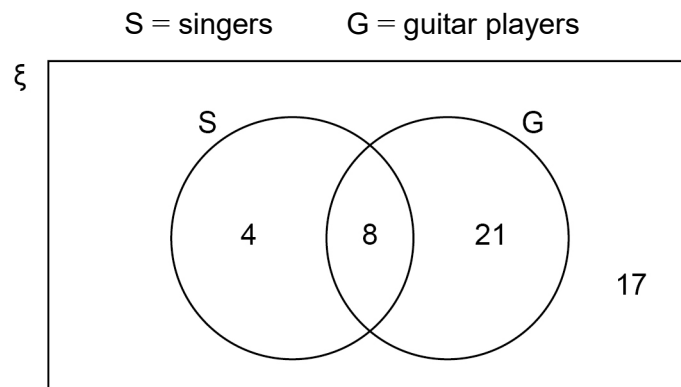
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7

Turn over ►



- 12 The Venn diagram shows information about 50 people who are in bands.



- 12 (a) How many of the people are guitar players?

[1 mark]

Answer \_\_\_\_\_

- 12 (b) How many of the people are singers but **not** guitar players?

[1 mark]

Answer \_\_\_\_\_

- 12 (c) One of the people is chosen at random.

Write down the probability that the person is

**not** a singer

and

**not** a guitar player.

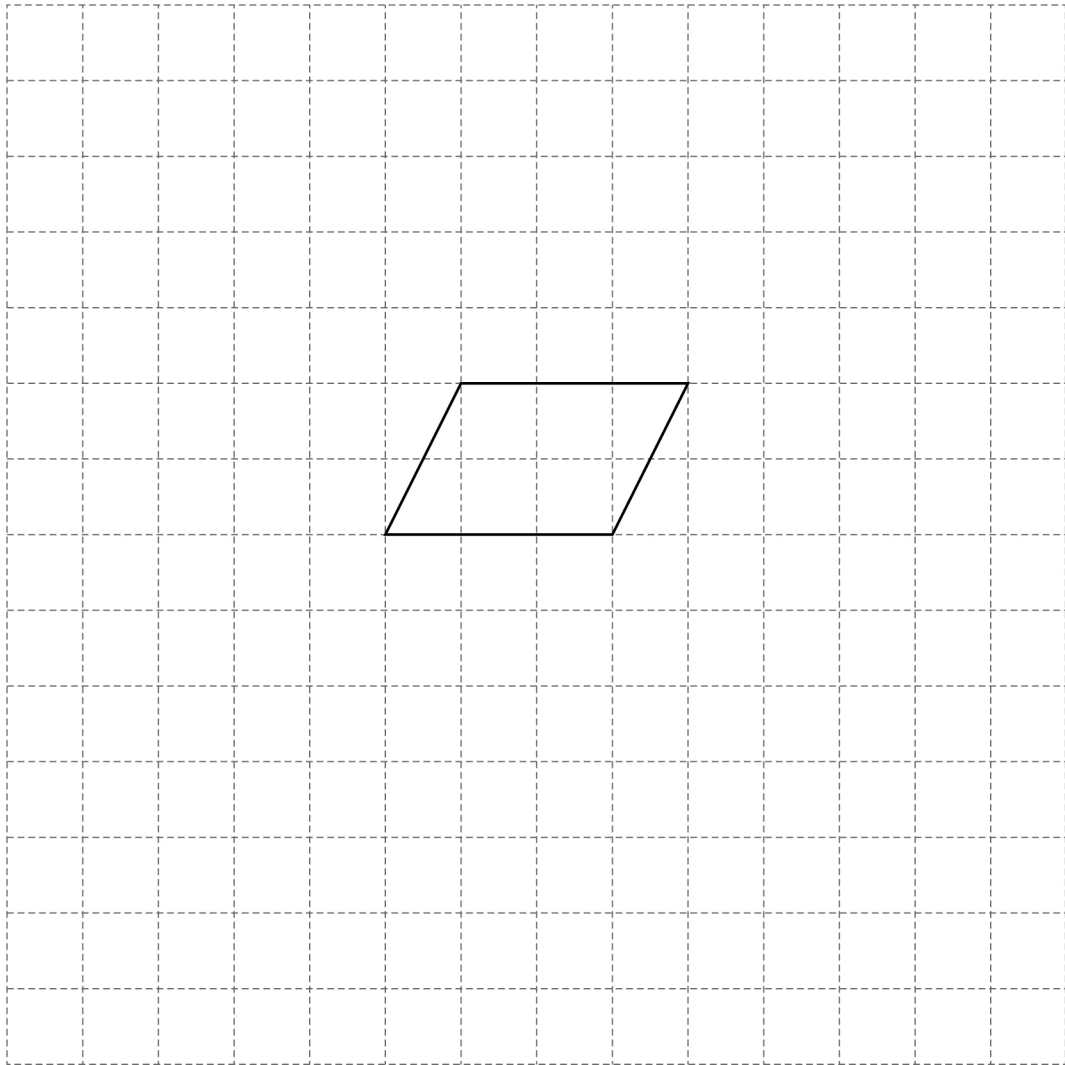
[1 mark]

Answer \_\_\_\_\_



13

Here is a parallelogram.



The parallelogram is translated 4 squares to the left and 3 squares up.

Draw the translated parallelogram.

**[2 marks]**

14 (a) Solve  $6x - 11 = 13$

[2 marks]

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$$x = \underline{\hspace{10cm}}$$

14 (b) Simplify fully  $(2 \times 4a) + 9 + \frac{15a}{3} - 7$

[3 marks]

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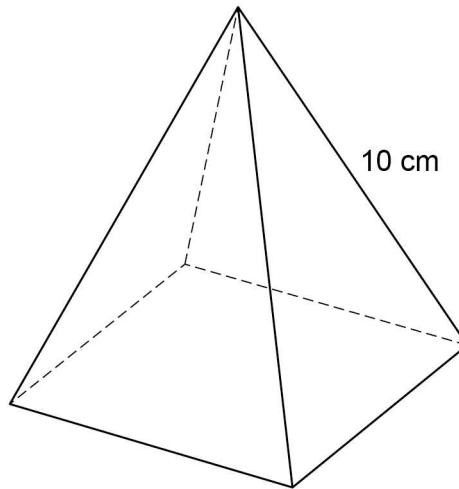
$$\text{Answer } \underline{\hspace{10cm}}$$



15

A pyramid has a square base.

Each of the four sloping edges has length 10 cm



The total length of all eight edges is 68 cm

Work out the **area** of the square base.

**[4 marks]**

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Answer \_\_\_\_\_  $\text{cm}^2$



- 16** The table shows information about how 150 students travel to school.

	Walk	Bus	Car	
Girls	22	33	17	Total = 72
Boys	24	41	13	Total = 78

- 16 (a)** What fraction of the **girls** walk to school?

Give your answer in its simplest form.

**[2 marks]**

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Answer \_\_\_\_\_

- 16 (b)** One of the **boys** is chosen at random.

What is the probability that the boy travels to school by bus?

**[1 mark]**

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Answer \_\_\_\_\_



16 (c) What percentage of the 150 **students** travel to school by car?

[2 marks]

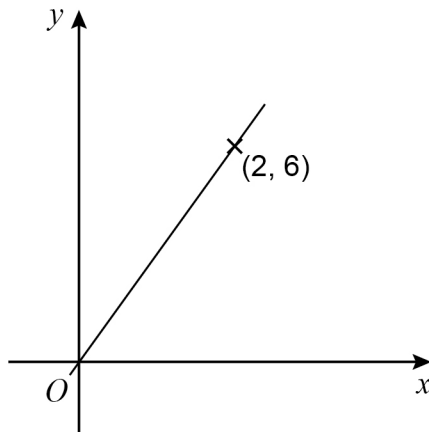
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Answer \_\_\_\_\_ %

17 A straight line passes through  $O$  and  $(2, 6)$



Circle the equation of the line.

[1 mark]

$$y = x + 4$$

$$y = 6$$

$$y = 3x$$

$$y = \frac{1}{3}x$$



**18 (a)** Work out 110% of 80

**[2 marks]**

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Answer \_\_\_\_\_

**18 (b)** Work out 21 as a fraction of 12

Circle your answer.

**[1 mark]**

$$\frac{7}{4}$$

$$\frac{4}{7}$$

$$\frac{3}{4}$$

$$\frac{4}{3}$$





**19** Bags X and Y each contain counters.

<p><b>Bag X</b></p> <p>30 counters</p> <p>Each counter is green, white or yellow</p>
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<p><b>Bag Y</b></p> <p>5 counters</p> <p>3 green and 2 red</p>
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**19 (a)**  $P(\text{green counter from X}) = P(\text{red counter from Y})$

Work out the number of green counters in X.

**[2 marks]**

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Answer \_\_\_\_\_

**19 (b)** All 35 counters are put into one bag.

One counter is picked at random.

Work out the probability that the counter is **not** red.

**[2 marks]**

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Answer \_\_\_\_\_

<hr/> <p>7</p>
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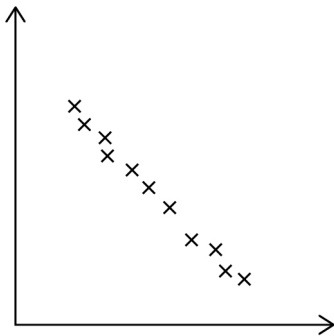
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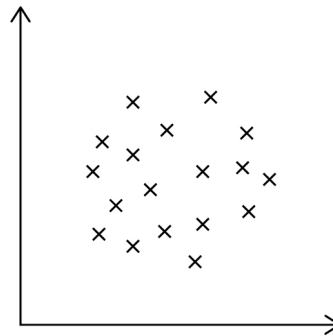
20

A and B are scatter graphs.

Graph A



Graph B



What type of correlation is shown by each graph?

Choose from

Weak positive  
Strong positive  
Weak negative  
Strong negative  
No correlation

**[2 marks]**

Graph A \_\_\_\_\_

Graph B \_\_\_\_\_



- 21 (a)** All the terms of a **geometric** progression are positive.  
The second and fourth terms are shown.

..... 4 ..... 16

Work out the first and third terms.

**[2 marks]**

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First term \_\_\_\_\_

Third term \_\_\_\_\_

- 21 (b)** The first two terms of an **arithmetic** progression are shown.

$p$      $5p$     .....

The sum of the first three terms is 90

Work out the value of  $p$ .

**[3 marks]**

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Answer \_\_\_\_\_

7
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Turn over ►



- 22 This formula converts temperature in degrees Fahrenheit ( $F$ ) to kelvin ( $K$ )

$$K = \frac{5}{9}(F - 32) + 273$$

A pottery oven is heated to 2192 degrees Fahrenheit.

Work out this temperature in kelvin.

[3 marks]

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Answer \_\_\_\_\_ kelvin

- 23 As a decimal  $\frac{11}{40} = 0.275$

Work out  $\frac{33}{400}$  as a decimal.

[2 marks]

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Answer \_\_\_\_\_



24

The cost of a holiday is £2400

Rana pays a deposit followed by monthly payments, in the ratio

deposit : total of the monthly payments = 3 : 5

She makes 6 equal monthly payments.

Work out her monthly payment.

[4 marks]

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Answer £ \_\_\_\_\_

25

Factorise fully  $2x^2 + 6x$

[2 marks]

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Answer \_\_\_\_\_



26

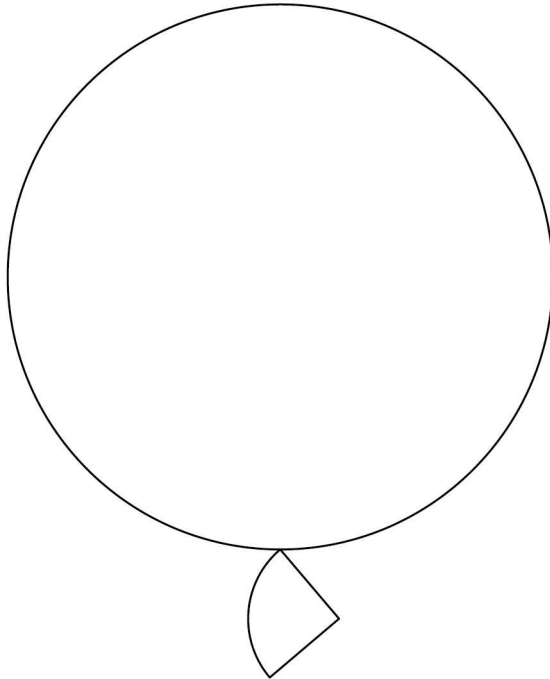
Two wire shapes make an earring.

The shapes are

a circle with radius 21 mm

and

a quarter circle.



Not drawn  
accurately

radius of circle : radius of quarter circle = 7 : 2

26 (a) Show that the radius of the quarter circle is 6 mm

[1 mark]

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**26 (b)** Work out the **total** length of the wire in the earring.

Give your answer in the form  $a\pi + b$  where  $a$  and  $b$  are integers.

**[4 marks]**

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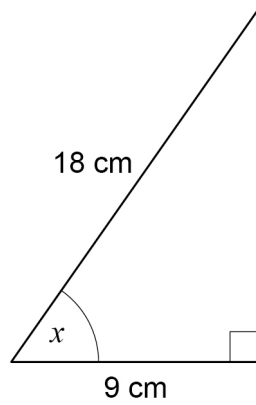
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Answer \_\_\_\_\_ mm

**Turn over for the next question**



27

Use trigonometry to work out the size of angle  $x$ .Not drawn  
accurately**[2 marks]**

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Answer \_\_\_\_\_ degrees





28 Rearrange  $c = \frac{d+2}{3}$  to make  $d$  the subject.

[2 marks]

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Answer \_\_\_\_\_

29 (a) Write 360 000 in standard form.

[1 mark]

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Answer \_\_\_\_\_

29 (b) Write  $9.2 \times 10^{-3}$  as an ordinary number.

[1 mark]

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Answer \_\_\_\_\_

**END OF QUESTIONS**



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outside the  
box*

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