

Centre Number	Candidate Number	Name
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CAMBRIDGE INTERNATIONAL EXAMINATIONS  
International General Certificate of Secondary Education

**MATHEMATICS**

**0580/01**

**0581/01**

Paper 1

October/November 2003

**1 hour**

Candidates answer on the Question Paper.

Additional Materials: Electronic calculator  
Geometrical instruments  
Mathematical tables (optional)  
Tracing paper (optional)

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen in the spaces provided on the Question Paper.

You may use a pencil for any diagrams or graphs.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

If working is needed for any question it must be shown below that question.

The number of marks is given in brackets [ ] at the end of each question or part question.

The total of the marks for this paper is 56.

Electronic calculators should be used.

If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

For  $\pi$ , use either your calculator value or 3.142.

If you have been given a label, look at the details. If any details are incorrect or missing, please fill in your correct details in the space given at the top of this page.

Stick your personal label here, if provided.

**For Examiner's Use**

- 1 Write 0.4 kilograms in grams.

Answer.....grams [1]

- 2 The price of a book is \$18. Sara is given a discount of 15%.  
Work out this discount.

Answer \$..... [2]

3



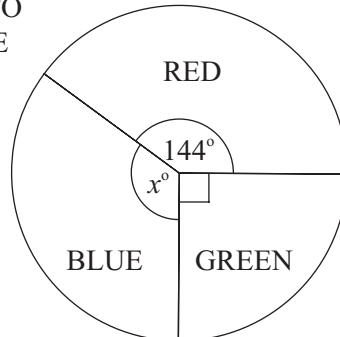
Susan writes the letters of her name on five cards.  
One of the five cards is chosen at random.  
Find the probability that the letter on the card is

- (a) S, Answer (a)..... [1]  
 (b) E. Answer (b)..... [1]

- 4 A country has three political parties, the Reds, the Blues and the Greens.

The pie chart shows the proportion of the total vote that each party received in an election.

NOT TO  
SCALE



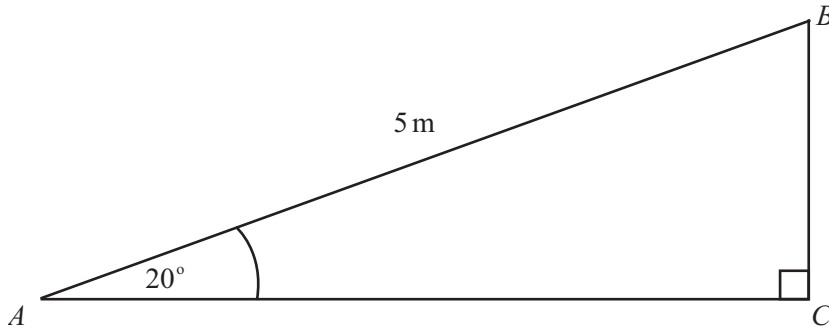
- (a) Find the value of  $x$ .

Answer (a)  $x =$ ..... [1]

- (b) What percentage of the votes did the Red party receive?

Answer (b).....% [2]

5



The diagram shows a right-angled triangle  $ABC$  with  $AB = 5\text{ m}$  and angle  $BAC = 20^\circ$ . Calculate the length  $BC$ .

Answer  $BC = \dots\dots\dots\text{m}$  [2]

6 Jeff takes 10 minutes to walk 1 kilometre. Find his average walking speed in kilometres per hour.

Answer  $\dots\dots\dots\text{km/h}$  [2]

7 Find the size of one of the ten interior angles of a regular decagon.

Answer  $\dots\dots\dots$  [3]

8 The length of a road is 1300 metres, correct to the nearest 100 metres. Complete the statement in the answer space.

Answer  $\dots\dots\dots\text{m} \leq \text{road length} < \dots\dots\dots\text{m}$  [2]

9 (a) Multiply out the brackets

$5x(2x - 3y)$ .

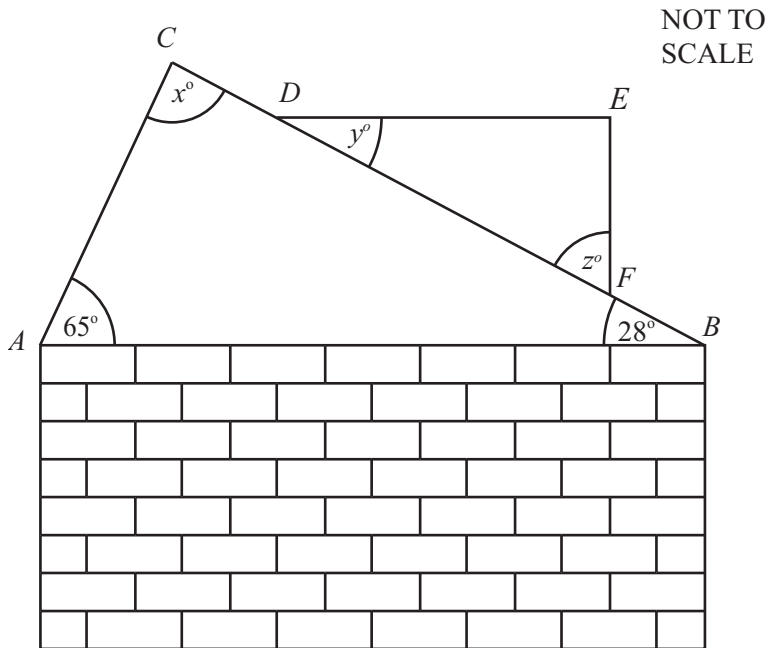
Answer (a)..... [2]

(b) Factorise completely

$6x^2 + 12x$ .

Answer (b)..... [2]

10



The diagram shows the side view of the roof of a house.  $AB$  and  $DE$  are horizontal.  $EF$  is vertical.

Find the value of

(a)  $x$ ,

Answer (a)  $x =$ ..... [1]

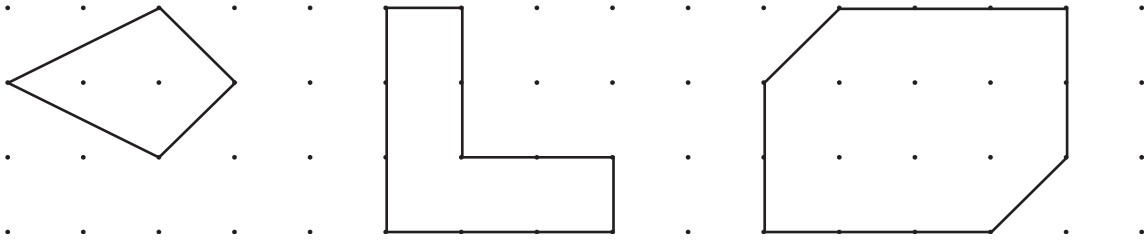
(b)  $y$ ,

Answer (b)  $y =$ ..... [1]

(c)  $z$ .

Answer (c)  $z =$ ..... [1]

11 In each of the shapes below draw **one** line which divides it into two congruent shapes.



[3]

12 Solve the simultaneous equations

$$\begin{aligned} 3x - y &= 0, \\ x + 2y &= 28. \end{aligned}$$

Answer  $x = \dots\dots\dots$

$y = \dots\dots\dots$  [3]

13 (a) Work out

$$2.7 \times 8.3 \div (12 - 2.7),$$

writing down

(i) your full calculator display,

Answer (a)(i) =  $\dots\dots\dots$  [1]

(ii) your answer to two decimal places.

Answer (a)(ii) =  $\dots\dots\dots$  [1]

(b) Work out  $(6 - \sqrt{11})^3$ .

Answer (b) =  $\dots\dots\dots$  [2]

14 The temperatures at sunrise in Berne on the seven days of one week were:

Sunday	-1 °C
Monday	-7 °C
Tuesday	-6 °C
Wednesday	1 °C
Thursday	3 °C
Friday	0 °C
Saturday	-4 °C

(a) List the days on which the temperature at sunrise was less than  $-3$  °C.

*Answer (a)*..... [1]

(b) Work out the mean (average) of the seven temperatures.

*Answer (b)*.....°C [3]

15 (a) Work out each of the following as a decimal.

(i) 28%

*Answer (a)(i)*..... [1]

(ii)  $\frac{275}{1000}$

*Answer (a)(ii)*..... [1]

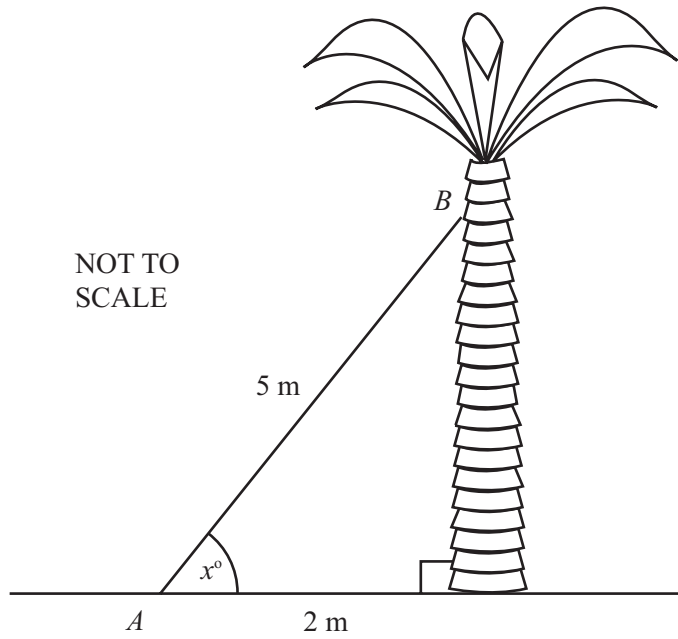
(iii)  $\frac{2}{7}$

*Answer (a)(iii)*..... [1]

(b) Write 28%,  $\frac{275}{1000}$  and  $\frac{2}{7}$  in order of the size, smallest first.

*Answer (b)*.....<.....<..... [1]

16



The diagram shows a ladder,  $AB$ , standing up against a palm tree. The ladder is 5 metres long and its base is 2 metres from the tree.

- (a) Calculate how high up the tree the ladder reaches.

Answer (a).....m [2]

- (b) The ladder makes an angle of  $x^\circ$  with the ground. Calculate the value of  $x$ .

Answer (b)  $x =$ ..... [2]

17 Write down the value of  $n$  in each of the following statements.

(a)  $1500 = 1.5 \times 10^n$

Answer (a)  $n =$ ..... [1]

(b)  $0.00015 = 1.5 \times 10^n$

Answer (b)  $n =$ ..... [1]

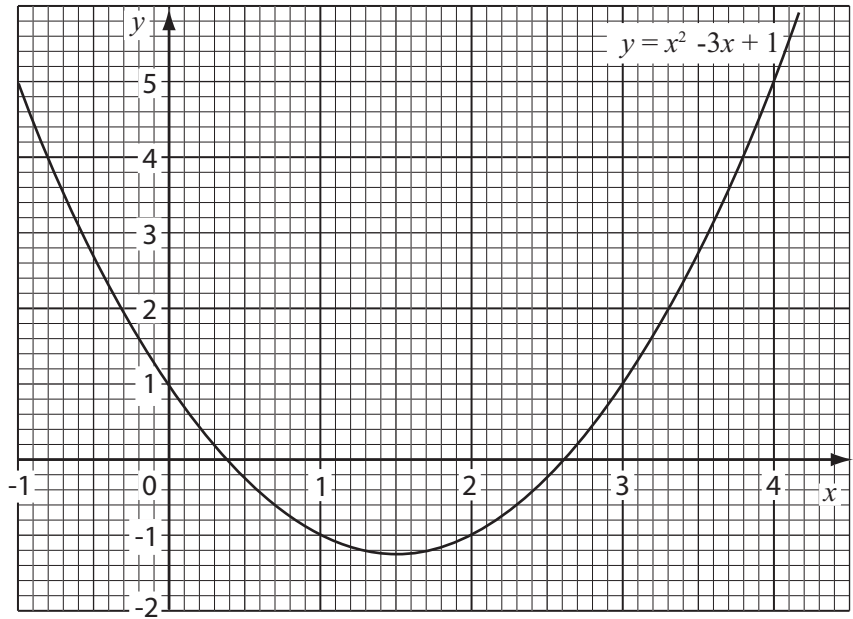
(c)  $5^n = 1$

Answer (c)  $n =$ ..... [1]

(d)  $\frac{1}{36} = 6^n$

Answer (d)  $n =$ ..... [1]

18 The diagram below shows the graph of  $y = x^2 - 3x + 1$ .



(a) Use the graph to solve the equation

$$x^2 - 3x + 1 = 0.$$

Answer (a)  $x = \dots\dots\dots$  or  $\dots\dots\dots$  [2]

(b) (i) Complete the table for  $y = x + 1$ .

$x$	-1	1	3
$y$		2	4

[1]

(ii) Draw the graph for  $y = x + 1$  on the grid above.

[1]

(c) Write down the coordinates of the intersections of the two graphs.

Answer (c)  $(\dots\dots, \dots\dots)$   $(\dots\dots, \dots\dots)$  [2]