

## MATHEMATICS Compulsory Part

### PAPER 1

#### Question-Answer Book

8.30 am – 10.45 am (2¼ hours)

This paper must be answered in English

#### INSTRUCTIONS

- (1) After the announcement of the start of the examination, you should first write your Candidate Number in the space provided on Page 1 and stick barcode labels in the spaces provided on Pages 1, 3, 5, 7, 9 and 11.
- (2) This paper consists of THREE sections, A(1), A(2) and B.
- (3) Attempt ALL questions in this paper. Write your answers in the spaces provided in this Question-Answer Book. Do not write in the margins. Answers written in the margins will not be marked.
- (4) Graph paper and supplementary answer sheets will be supplied on request. Write your Candidate Number, mark the question number box and stick a barcode label on each sheet, and fasten them with string INSIDE this book.
- (5) Unless otherwise specified, all working must be clearly shown.
- (6) Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
- (7) The diagrams in this paper are not necessarily drawn to scale.
- (8) No extra time will be given to candidates for sticking on the barcode labels or filling in the question number boxes after the 'Time is up' announcement.

Please stick the barcode label here.

Candidate Number



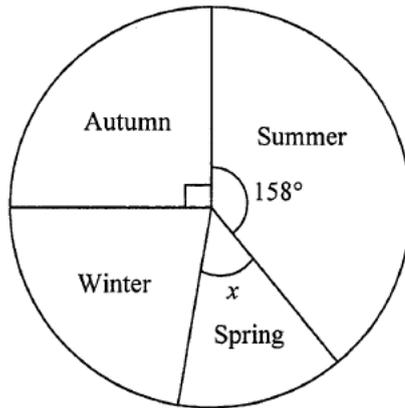






Please stick the barcode label here.

7. The pie chart below shows the distribution of the seasons of birth of the students in a school.



Distribution of the seasons of birth of the students in the school

If a student is randomly selected from the school, then the probability that the selected student was born in spring is  $\frac{1}{9}$ .

- (a) Find  $x$ .
- (b) In the school, there are 180 students born in winter. Find the number of students in the school. (4 marks)

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19.  $ABC$  is a thin triangular metal sheet, where  $BC = 24$  cm ,  $\angle BAC = 30^\circ$  and  $\angle ACB = 42^\circ$  .

(a) Find the length of  $AC$  . (2 marks)

(b) In Figure 2, the thin metal sheet  $ABC$  is held such that only the vertex  $B$  lies on the horizontal ground.  $D$  and  $E$  are points lying on the horizontal ground vertically below the vertices  $A$  and  $C$  respectively.  $AC$  produced meets the horizontal ground at the point  $F$  . A craftsman finds that  $AD = 10$  cm and  $CE = 2$  cm .

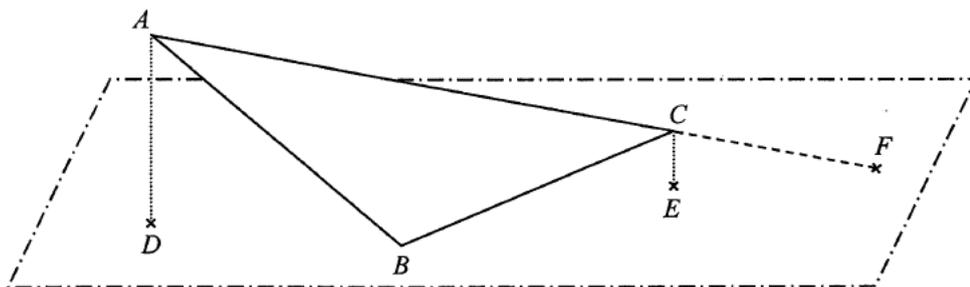


Figure 2

- (i) Find the distance between  $C$  and  $F$  .
- (ii) Find the area of  $\triangle ABF$  .
- (iii) Find the inclination of the thin metal sheet  $ABC$  to the horizontal ground.
- (iv) The craftsman claims that the area of  $\triangle BDF$  is greater than  $460$  cm<sup>2</sup> . Do you agree? Explain your answer.

(11 marks)

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**END OF PAPER**

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