

MATHEMATICS Compulsory Part
PAPER 1 (Sample Paper)
Question-Answer Book

Time allowed: 2 hours 15 minutes
This paper must be answered in English.

INSTRUCTIONS

1. Write your Candidate Number in the space provided on Page 1.
2. Stick barcode labels in the spaces provided on Pages 1, 3, 5, 7 and 9.
3. This paper consists of **THREE** sections, A(1), A(2) and B. Each section carries 35 marks.
4. 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.
5. 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.
6. Unless otherwise specified, all working must be clearly shown.
7. Unless otherwise specified, numerical answers should be either exact or correct to 3 significant figures.
8. The diagrams in this paper are not necessarily drawn to scale.

Please stick the barcode label here.

Candidate Number									
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	Marker's Use Only	Examiner's Use Only
	Marker No.	Examiner No.
Question No.	Marks	Marks
1 – 2		
3 – 4		
5 – 6		
7 – 8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
Total		

SECTION A(1) (35 marks)

1. Simplify $\frac{(xy)^2}{x^{-5}y^6}$ and express your answer with positive indices. (3 marks)

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2. Make b the subject of the formula $a(b+7) = a+b$. (3 marks)

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3. Factorize

(a) $3m^2 - mn - 2n^2$,

(b) $3m^2 - mn - 2n^2 - m + n$.

(3 marks)

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4. The marked price of a handbag is \$ 560 . It is given that the marked price of the handbag is 40% higher than the cost.

(a) Find the cost of the handbag.

(b) If the handbag is sold at \$ 460 , find the percentage profit.

(4 marks)

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7. In Figure 2, O is the centre of the semicircle $ABCD$. If $AB \parallel OC$ and $\angle BAD = 38^\circ$, find $\angle BDC$. (4 marks)

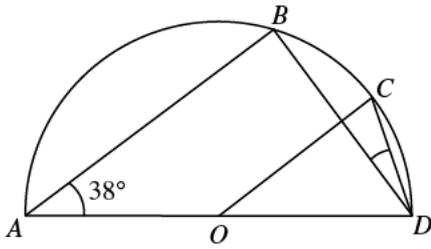


Figure 2

8. In Figure 3, the coordinates of the point A are $(-2, 5)$. A is rotated clockwise about the origin O through 90° to A' . A'' is the reflection image of A with respect to the y -axis.
- (a) Write down the coordinates of A' and A'' .
- (b) Is OA'' perpendicular to AA' ? Explain your answer.

(5 marks)

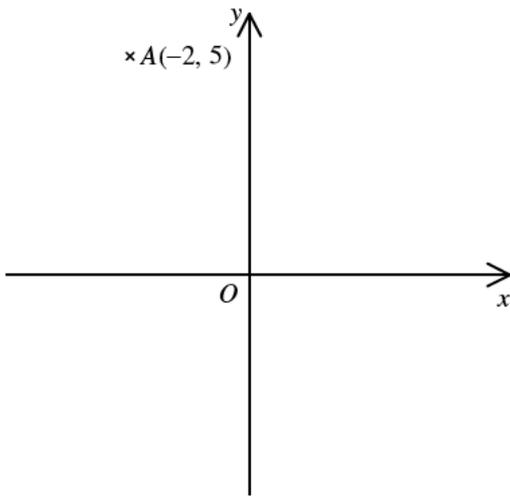


Figure 3

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18. In Figure 8(a), ABC is a triangular paper card. D is a point lying on AB such that CD is perpendicular to AB . It is given that $AC = 20$ cm, $\angle CAD = 45^\circ$ and $\angle CBD = 30^\circ$.

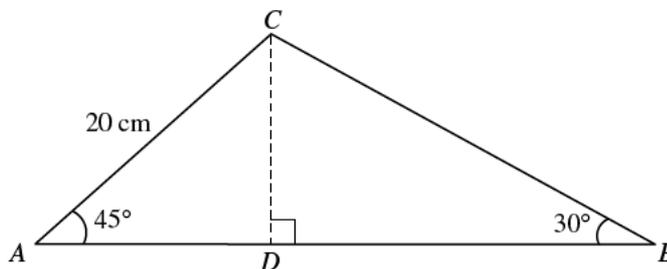


Figure 8(a)

- (a) Find, in surd form, BC and BD . (3 marks)
- (b) The triangular paper card in Figure 8(a) is folded along CD such that $\triangle ACD$ lies on the horizontal plane as shown in Figure 8(b).

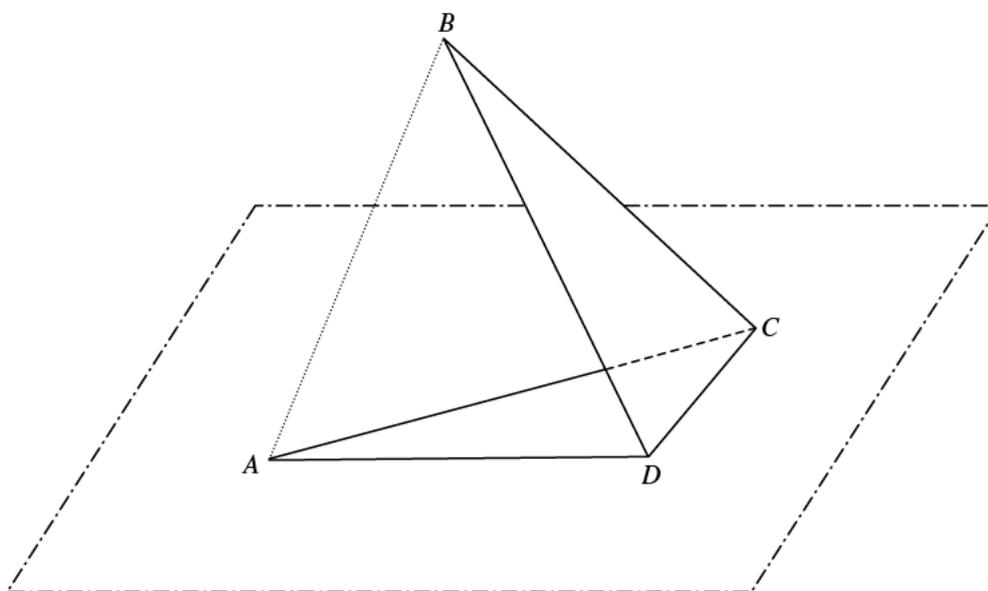


Figure 8(b)

- (i) If the distance between A and B is 18 cm, find the angle between the plane BCD and the horizontal plane.
- (ii) Describe how the volume of the tetrahedron $ABCD$ varies when $\angle ADB$ increases from 40° to 140° . Explain your answer.

(5 marks)

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