



HAMDARD PUBLIC SCHOOL
PERIODIC ASSESSMENT I
SESSION: 2025-2026
SUBJECT: MATHEMATICS
CLASS: X

Max. Marks - 20

Time: 1 Hour

General Instructions:

1. All questions are compulsory.
2. The question paper consists of 11 questions divided into four sections A, B, C and D. Section A comprises of 5 questions of 1 mark each, Section B comprises of 3 questions of 2 marks each, Section C comprises of 2 questions of 3 marks each & Section D comprise of 1 question of case study of 03 marks.
3. Use of calculator is not permitted.

Section - A (Multiple Choice Questions)

- Q-1 If $\sin A = \frac{24}{25}$, then the value of $\cos A$ is
(a) $\frac{7}{25}$ (b) $\frac{24}{25}$ (c) 1 (d) none of these
- Q-2 The value of $\sin 60^\circ \cos 30^\circ - \cos 60^\circ \sin 30^\circ$ is
(a) 1 (b) -1 (c) 0 (d) none of these
- Q-3 Maximum value of $\frac{1}{\operatorname{cosec} \theta}$, $0^\circ < \theta < 90^\circ$ is:
(a) 1 (b) -1 (c) 2 (d) $\frac{1}{2}$
- Q-4 The height of a tower is 10m. What is the length of its shadow when Sun's altitude is 45° ?
(a) 10 m (b) 30 m (c) 20 m (d) none of these
- Q-5 The ratio of the length of a rod and its shadow is $1 : \sqrt{3}$. The angle of elevation of the sun is
(a) 30° (b) 60° (c) 45° (d) none of these

Section - B

- Q-6 Prove $(1 + \tan^2 \theta) (1 + \sin \theta) (1 - \sin \theta) = 1$
- Q-7 An observer, 1.5 m tall, is 28.5 m away from a tower 30 m high. Find the angle of elevation of the top of the tower from his eye.
- Q-8 If $5 \tan \theta = 4$, then find the value of $\frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 2 \cos \theta}$

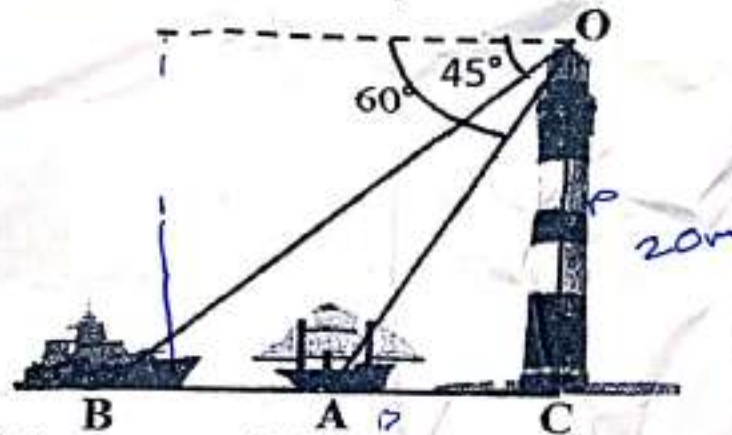
Section - C

- Q-9 Prove that $(\sin A + \operatorname{cosec} A)^2 + (\cos A + \sec A)^2 = 7 + \tan^2 A + \cot^2 A$
- Q-10 An aeroplane at an altitude of 200 m observes the angles of depression of opposite points on the two banks of a river to be 45° and 60° . Find the width of the river.

Q-11 Case Study Based Question:-

A person/observer on the sea coast observes two ships in the sea, both the ships are in same straight path one behind the other.

If the observer is on his building of height 20 meters (including observer) and he observes the angle of depression of two ships as 45° and 60° respectively.



On the basis of above information answer the following questions.

- (i) If a person observes a ship whose angle of depression is 60° then how much distance is the ship away from the building?
- (ii) If a person observes another ship whose angle of depression is 45° then how much distance that ship is away from the building?
- (iii) If a person observes the ship whose angle of depression changes from 60° to 30° then how far be ship from the building if the observer is at 20 m of height (including him)?

OR

At a time when a person observes two ships whose angle of depressions are 60° and 45° the distance between the ships is (in meter).