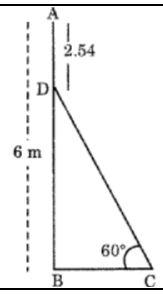
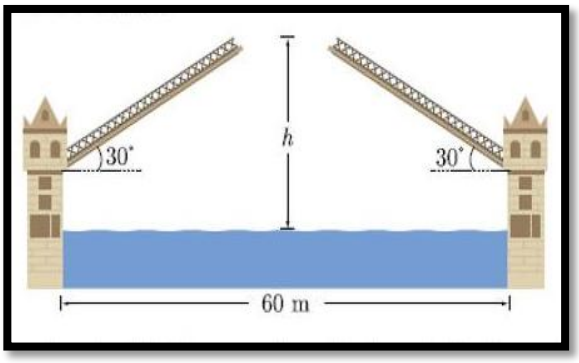
BCM SCHOOL, BASANT AVENUE, DUGRI, LUDHIANA.
JULY ASSIGNEMENT
CLASS- X (MATHEMATICS)
TOPICS: INTRODUCTION TO TRIGONOMETRY & APPLICATION OF TRIGONOMETRY.

	SECTION –A (MULTIPLE CHOICE QUESTIONS)
1.	If the ratio of length of the shadow of a pole to its height is √3 : 1, then elevation of the sun is (a) 30° (b) 45° (c) 60° (d) 120°
2.	5 tan² A – 5 sec² A + 1 is equal to (a) 6 (b) -5 (c) 1 (d) -4
3.	A steel wire is tied to the top of an electric pole and the ground making an angle of 60° with the ground. If the height of electric pole is 12 m, then length of steel wire is (a) 4√3 m (b) 8√3 m (c) 4/√3 m (d) 12√3 m
	SECTION – B(2 MARKS QUESTIONS)
4.	In figure, AB is a 6 m high pole and CD is a ladder inclined at an angle of 60° to the horizontal and reaches up to a point D of pole. If AD = 2.54 m, find the length of the ladder. 
5.	If $sin\theta + cos\theta = p \; and \; sec\theta + cosec\theta = q, show \; that \; q(p^2 - 1) = 2p$
	SECTION – C (3 MARKS QUESTIONS)
6.	If $tan\theta + sin\theta = m \; and \; tan - sin\theta = n \, , show \; that \; m^2 - n^2 = 4\sqrt{mn}$
7.	A man is standing on the deck of a ship, which is 8 m above water level. He observes the angle of elevation of the top of a hill as 60° and the angle of depression of the base of the hill as 30°. Calculate the distance of the hill from the ship and the height of the hill.
	SECTION – D (5 MARKS QUESTIONS)
8.	A ladder rests against a wall at an angles α to the horizontal. Its foot is pulled away from the wall through a distance 'p', so that it slides a distance 'q' down the wall making an angle β with the horizontal. Show that $\frac{p}{q} = \frac{cos\beta - cos\alpha}{sin\alpha - sin\beta}$
9.	From an aeroplane vertically above a straight horizontal plane, the angles of depression of two consecutive kilometres stones on the opposite sides of the aeroplane are found to be α and β. Show that the height of the aeroplane is: $\frac{tan\alpha tan\beta}{tan\alpha + tan\beta}$
	SECTION – E (CASE STUDY)

10.	**CASE STUDY:** A drawbridge is a bridge that can be moved in order to stop or allow passage across it. Modern drawbridges are often built across large, busy waterways. They can be lifted to allow large ships to pass or lowered to allow land vehicles or pedestrians to cross. A drawbridge is 60m long when stretched across a river. As shown in the figure, the two sections of the bridge can be rotated upward through an angle of 30°.  (A) If the water level is 5 metre below the closed bridge, find the height h between the end of a section and the water level when the bridge is fully open. (B) How far apart are the ends of the two sections when the bridge is fully opened, as shown in the figure?