INDIAN SCHOOL DARSAIT
DEPARTMENT OF MATHEMATICS
WORKSHEET # 14

Subject : MATHEMATICS	Topic : SOME APPLICATIONS OF TRIGONOMETRY	Date of Worksheet : 14/11/2017
Resource Person: Mrs. Indu .P		Date of submission : 19/11/2017
Name of the Student _____	Class &Division:_____	Roll Number : ___

S.No. **Section A-[Basic skills]**

1 . $\frac{3}{8} - \frac{1}{10} =$

2. $45.5 \times \frac{1}{15} =$

3. $(36 \div 6)\ 4 =$

4. Solve for x : $\frac{x}{4} = \frac{5}{16}$

5. Evaluate : $\tan 30^0 + \tan 60^0$

Sl.N0.	**Section B -[Chapter based questions]**	Marks
1.	The angles of depression of two ships from the top of a light house and on the same side of it are found to be 45^o and 30^o respectively. If ships are 200 m apart, find the height of the light house.	4
2.	On a horizontal plane there is a vertical tower with a flag pole on the top of the tower. At a point 9 meters away from the foot of the tower the angle of elevation of the top and bottom of the flag pole are 60^0 and 30^o respectively. Find the heights of the tower and the flag pole mounted on it.	4
3.	An aeroplane when flying at a height of 4000m from the ground passes vertically above another aero plane at an instant when the angles of the elevation of the two planes from the same point on the ground are 60° and 45° respectively. Find the vertical distance between the aero planes at that instant. [Take: √3=1.732]	4
4.	A man on the deck of a ship 14m above water level observes that the angle of elevation of the top of the cliff is 60° and the angle of depression of the base of the cliff is 30°. Calculate the distance of the cliff from the ship and the height of the cliff. [Take: √3=1.732]	4
5.	The height of a tree is 10m. It is bent by the wind in such a way that its top touches the ground and makes an angle of 60° with the ground. At what height from the bottom did the tree get bent? [Take: √3=1.732]	4
6.	A 1.5m tall boy stands at a distance of 3m from a lamp post and casts a shadow of 4.5m on the ground. Find the height of the lamp post.	4

7. A vertical tower stands on a horizontal plane and is surmounted by a vertical flagstaff of height 5m. From a point on the plane the angle of elevation of the bottom and the top of the flagstaff are 30° and 60°. Find the height of the tower. 4

8. The angle of elevation of the top of a tower from a point on the same level as the foot of the tower is 30°. On advancing 150m towards the foot of the tower, the angle of elevation becomes 60°. Show that the height of the tower is 129.9 metres. [Given: $\sqrt{3}=1.732$] 4

9. The angle of elevation of a jet plane from a point A on the ground is 60°. After a flight of 15 seconds, the angle of elevation changes to 30°. If the jet plane is flying at a constant height of $1500\sqrt{3}$m, find the speed of the jet plane. 4

10. As observed from the top of light house, 100 m above sea level the angle of depression of a ship sailing directly towards it changes from 30 to 45. Determine the distance travelled by the ship during the period of observation. 4

11. The angle of elevation of a cloud from a point 60m above a lake is 30^0 and the angle of depression of the reflection of cloud in the lake is 60^0. Find the height of the cloud. 4

SECTION C [HOT QUESTIONS]

1. A boy standing on a horizontal plane finds a bird flying at a distance of 100m from him at an elevation of 30°. A girl standing on the roof of a 20m high building , finds the angle of elevation of the same bird to be 45°. Boy and the girl are on the opposite sides of the bird. Find the distance of the bird from the girl. 4

2. The angle of elevation of a cloud from a point 60metres above a lake is 30° and the angle of depression of the reflection of the cloud in the lake is 60°. Find the height of the cloud. 4

3. The angle of elevation of a jet fighter from a point A on the ground is 60°. After a flight of 15seconds, the angle of elevation changes to 30°. If the jet is flying at a speed of 720km/hour, find the constant height at which the jet is flying. [Use: $\sqrt{3}=1.732$] 4

4. A vertical tower stands on a horizontal plane and is surmounted by a vertical flagstaff of height h. At appoint on the plane, the angles of elevation of the bottom of the flagstaff is α and that of the top of the flagstaff is β. 4
Prove that the height of the tower is $h \tan\alpha / \tan\beta - \tan\alpha$

5. The angle of elevation of a cloud from a point h meters above a lake is α and the angle of depression of the reflection of cloud in the lake is β. Prove that the height of the cloud is $\frac{h(\tan\beta + \tan\alpha)}{\tan\beta - \tan\alpha}$ 4