





**INDIAN SCHOOL DARSAIT**  
**DEPARTMENT OF MATHEMATICS**



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| 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 $30^\circ$ and $60^\circ$ . 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 $30^\circ$ . On advancing 150m towards the foot of the tower, the angle of elevation becomes $60^\circ$ . 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 $60^\circ$ . After a flight of 15 seconds, the angle of elevation changes to $30^\circ$ . If the jet plane is flying at a constant height of 1500 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 $30^\circ$ to $45^\circ$ . 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 $30^\circ$ and the angle of depression of the reflection of cloud in the lake is $60^\circ$ . Find the height of the cloud.  | 4 |

**SECTION C [HOT QUESTIONS]**

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| 1. | A boy standing on a horizontal plane finds a bird flying at a distance of 100m from him at an elevation of $30^\circ$ . A girl standing on the roof of a 20m high building, finds the angle of elevation of the same bird to be $45^\circ$ . 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 $30^\circ$ and the angle of depression of the reflection of the cloud in the lake is $60^\circ$ . Find the height of the cloud.   | 4 |
| 3. | The angle of elevation of a jet fighter from a point A on the ground is $60^\circ$ . After a flight of 15seconds, the angle of elevation changes to $30^\circ$ . 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 a point on the plane, the angles of elevation of the bottom of the flagstaff is $\alpha$ and that of the top of the flagstaff is $\beta$ .<br>Prove that the height of the tower is $h \frac{\tan \alpha}{\tan \alpha - \tan \beta}$      | 4 |
| 5. | The angle of elevation of a cloud from a point h meters above a lake is $\alpha$ and the angle of depression of the reflection of cloud in the lake is $\beta$ . Prove that the height of the cloud is $\frac{h(\tan \alpha + \tan \beta)}{\tan \alpha - \tan \beta}$   | 4 |