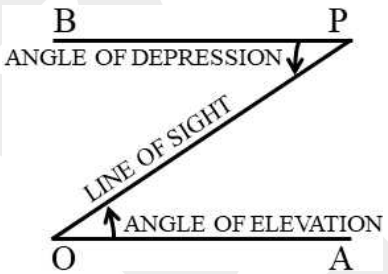
MATHEMATICS

CLASS NOTES FOR CBSE

Chapter 24. Some Applications of Trigonometry

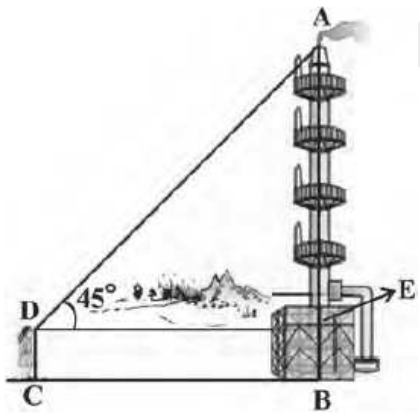
01. Angles of Elevation and Depression

Let O and P be two points such that the point P is at higher level. Let OA and PB be horizontal lines through O and P respectively. If an observer is at O and the point P is the object under consideration, then the line OP is called the line of sight of the point P and the angle AOP, between the line of sight and the horizontal line OA, is known as the angle of elevation of point P as seen from O. If an observed is at P and the object under consideration is at O, then the angle BPO is known as the angle of depression of O as seen from P. Obviously, the angle of elevation of a point P as seen from a point O is equal to the angle of depression of O as seen from P.



***Example* I** An observer 1.5 m tall is 28.5 m away from a chimney. The angle of elevation of the top of the chimney from her eyes is 45°. What is the height of the chimney?

***Solution* I** Here, AB is the chimney, CD the observer and ∠ADE the angle of elevation (see Figure). In this case, ADE is a triangle, right-angled at E and we are required to find the height of the chimney.



We have, AB = AE + BE = AE + 1.5

and DE = CB = 28.5 m