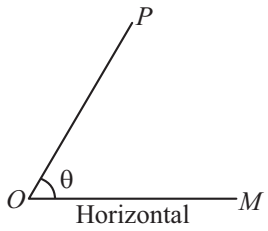
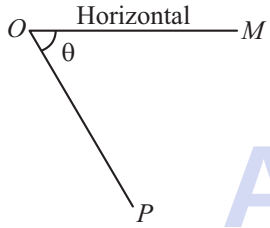
CHAPTER

24 Heights and Distances

Angle of Elevation

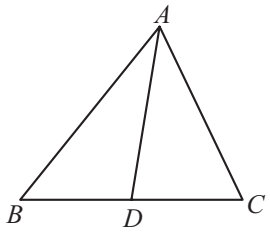


Angle of Depression



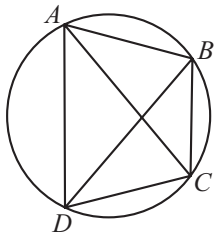
Apollonius Theorem

$AB^2 + AC^2 = 2(AD^2 + BD^2)$ or $2(AD^2 + DC^2)$

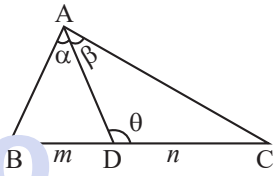


Ptolemy's Theorem

$AC.BD = AB.CD + AD.BC$



m-n Theorem



(*i*) $(m + n)\cot\theta = m\cot\alpha - n\cot\beta$

(*ii*) $(m + n)\cot\theta = n\cot B - m\cot C$

Properties of Circles

- If AB subtends equal angles at two points P and Q, the points A, B, P and Q are concyclic. ($\because$ Angles on the same segment of a circle are equal)
- Angle subtended by a chord at the center is twice the angle subtended at any point on the circumference.
- Let AP be the tangent at a point A on the circumference of a circle passing through A, B and C. Then $\angle BAP = \angle ACB$.