



HT = Target Height  
 HR = Reflector Height  
 HI = Instrument Height (Theodolite, etc.)  
 HM = Meter Height (Distance Meter)

SD = Slope Distance  
 Z = Zenith Angle (measured)  
 ZA = Zenith Angle (corrected)

$$\begin{aligned} x &= HM - HI \\ y &= HT - HR \\ \text{TRIM} &= z = x + y = (HT - HR) + (HM - HI) \\ &\quad \text{or } (HT - HR) - (HI - HM) \end{aligned}$$

$$\frac{\sin(a)}{\text{TRIM}} = \frac{\sin(Z)}{SD} \quad \text{therefore} \quad a = \text{asin} \left[ \frac{[(HT - HR) - (HI - HM)] \cdot \sin(Z)}{SD} \right]$$

$$\text{ZA} = Z + a = Z + \text{asin} \left[ \frac{\text{TRIM} \cdot \sin(Z)}{SD} \right]$$