



$L$  = length of Vertical parabolic curve PC-PT measured along the horizontal projection (Station change)

PI = point of intersection

PC = point of curvature

PT = point of tangency

$m$  = mid-ordinate (  $m = e$  )

$G_1$  &  $G_2$  = tangent grades (  $G_1 \neq G_2$  )

$$m = e = (L) \left( \frac{G_1 - G_2}{8} \right)$$

$$y = F X^2 = \frac{X^2 m}{(L \div 2)^2}$$

$$F = \frac{m}{(L \div 2)^2} = \frac{(G_1 - G_2) L}{8 (L \div 2)^2} = \frac{G_1 - G_2}{2 L}$$

$$\text{Elevation at Pt A} = \text{PC elev} + (G_1 X) - (F X^2)$$