## ***Vertical Velocity Equation***

$$y = \frac{\sqrt{gkm} \times (1 - e^{-\frac{2x\sqrt{gkm}}{m}})}{(e^{\frac{-2x\sqrt{gkm}}{m}} + 1) \times k}$$

## ***Horizontal Velocity Equation***

$$y = \frac{1}{\frac{xk}{m} + (V_{bas})^{-1}}$$

## ***Total Velocity***

$$y = \sqrt{\left(\frac{\sqrt{gkm} \times (1 - e^{-\frac{2x\sqrt{gkm}}{m}})}{(e^{\frac{-2x\sqrt{gkm}}{m}} + 1) \times k}\right)^2 + \left(\frac{1}{\frac{xk}{m} + (V_{bas})^{-1}}\right)^2}$$