

# Vertical Curve Primer

## Standard Operating Procedure

for computing the elevation of a point on a vertical curve.

1. Draw a rough sketch.
2. Find  $R$ .  $R = (G_2 - G_1)/L$  (Grades are in percent;  $L$  is in stations) **(CERM Eq. 79-46)**
3. Find PVC Elevation.  $PVC\ El = PVI\ El - (G_1)(L/2)$
4. Find PVC Station.  $PVC\ Sta = PVI\ Sta - L/2$
5. Find  $x$  distance to point of interest. (Grades are in percent.  $x$  is in stations)
  - (a) For turning point (highpoint or lowpoint):  $x_t = -G_1/R$ ; **(CERM Eq. 79-48)**
  - (b) For points of know station:  $Point\ Sta. - PVC\ Sta.$
6. Calculate Elevation at point of interest.  
 $Elevation = R(x^2)/2 + G_1 x + PVC\ El$ ; **(CERM Eq. 79-47)**