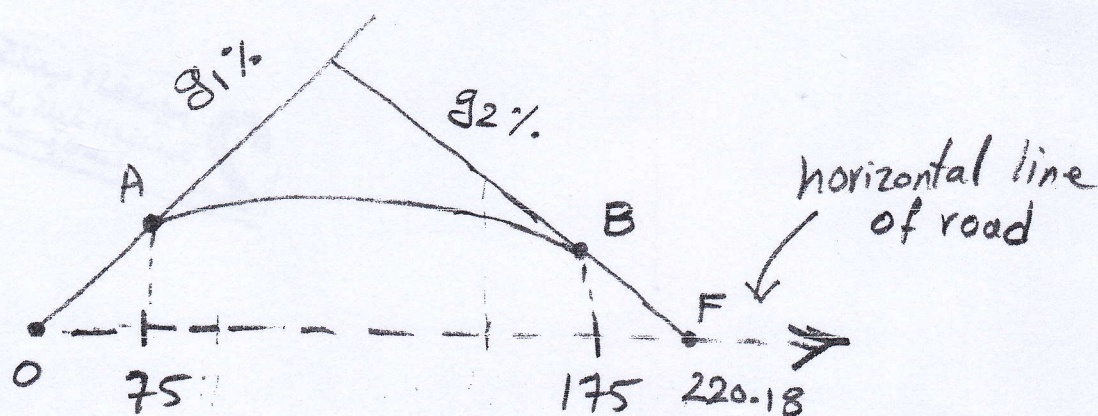


Example 2/ Taken the elevation of specified points as shown in table below at horizontal line of road.

The connection between point A and B has done by vertical curve. Assume the first gradient pass through O and A, while the second gradient pass through B and F. Compute the R.L of curve at 25m interval.

Distance (m)	0	75	175	220.8
Elevation (m)	62.40	63.96	64.13	63.38
Point	O	A	B	F



Sol.

$$g_1 = \frac{\text{Elevation A} - \text{Elevation O}}{\text{distance between A} \rightarrow \text{O}} = \frac{63.96 - 62.40}{75}$$

$$= 0.02 = +2\%$$

$$g_2 = \frac{\text{Elevation F} - \text{Elevation B}}{\text{distance between F} \rightarrow \text{B}} = \frac{63.38 - 64.13}{45.18}$$

$$= -0.016$$

$$= -1.66\%$$



$$A = g_2 - g_1 = -1.66 - (-2) = -3.66$$

$$\Delta e = \frac{A \cdot L}{8} = \frac{-3.66 \times 100}{8} = -0.4575$$

$175 - 75 = 100^m = 1 \text{ station between A and B}$



$$\Delta y = 4 \Delta e \left(\frac{x}{L}\right)^2 = 4(-0.46) \left(\frac{x}{1}\right)^2 = -1.83x^2$$

Station	x	$g_1 x$	Tangent Elev.(m)	$\Delta y$ (m)	Curve Elev.(m)
BVC 75	0	0	63.96		63.96
100	0.25	0.5	64.46	-0.114	64.346
125	0.5	1.0	64.96	-0.458	64.502
150	0.75	1.5	65.46	-1.029	64.431
175	1	2.0	65.96	-1.83	64.13

H.W/ A 600m equal tangent sag vertical curve has the BVC at station 170+00 and elevation 100.00m. The initial grade is -3.5% and the final grade is +0.5%.

Find : Elevation and stationing of PVI, EVC and the lowest point on the curve.