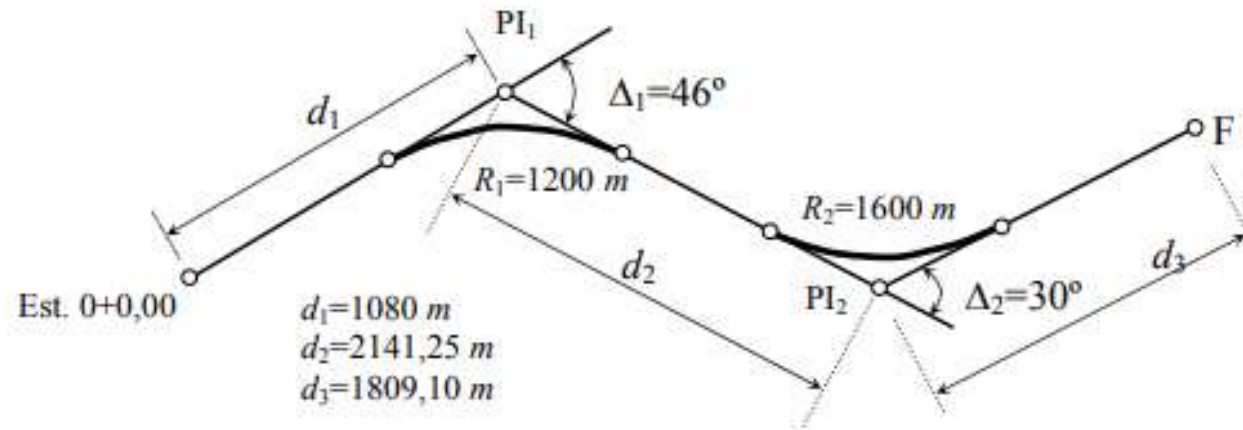
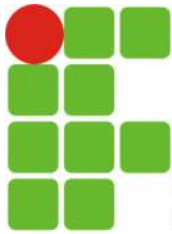


Ex. 01: A figura mostra a planta de um traçado com duas curvas circulares. Calcular as estacas dos PI's e a estaca final





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Resolução Ex. 01:

$$\text{CURVA 1: } E(\text{PI}_1) = d_1 = 54 + 0,00$$

$$T_1 = 1200 \cdot \tan\left(\frac{46^\circ}{2}\right) \Rightarrow \boxed{T_1 = 509,37 \text{ m}}$$

$$D_1 = \frac{\pi \cdot 1200 \cdot 46^\circ}{180^\circ} \Rightarrow \boxed{D_1 = 963,42 \text{ m}}$$

$$E(\text{PC}_1) = (54 + 0,00) - (25 + 9,37) = 28 + 10,63$$

$$E(\text{PT}_1) = (28 + 10,63) + (48 + 3,42) = 76 + 14,05$$

$$\text{CURVA 2: } E(\text{PI}_2) = E(\text{PT}_1) + d_2 - T_1$$

$$E(\text{PI}_2) = (76 + 14,05) + (107 + 1,25) - (25 + 9,37) = 158 + 5,93$$

$$T_2 = 1600 \cdot \tan\left(\frac{30^\circ}{2}\right) \Rightarrow \boxed{T_2 = 428,72 \text{ m}}$$

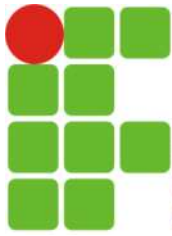
$$D_2 = \frac{\pi \cdot 1600 \cdot 30^\circ}{180^\circ} \Rightarrow \boxed{D_2 = 837,76 \text{ m}}$$

$$E(\text{PC}_2) = (158 + 5,93) - (21 + 8,72) = 136 + 17,21$$

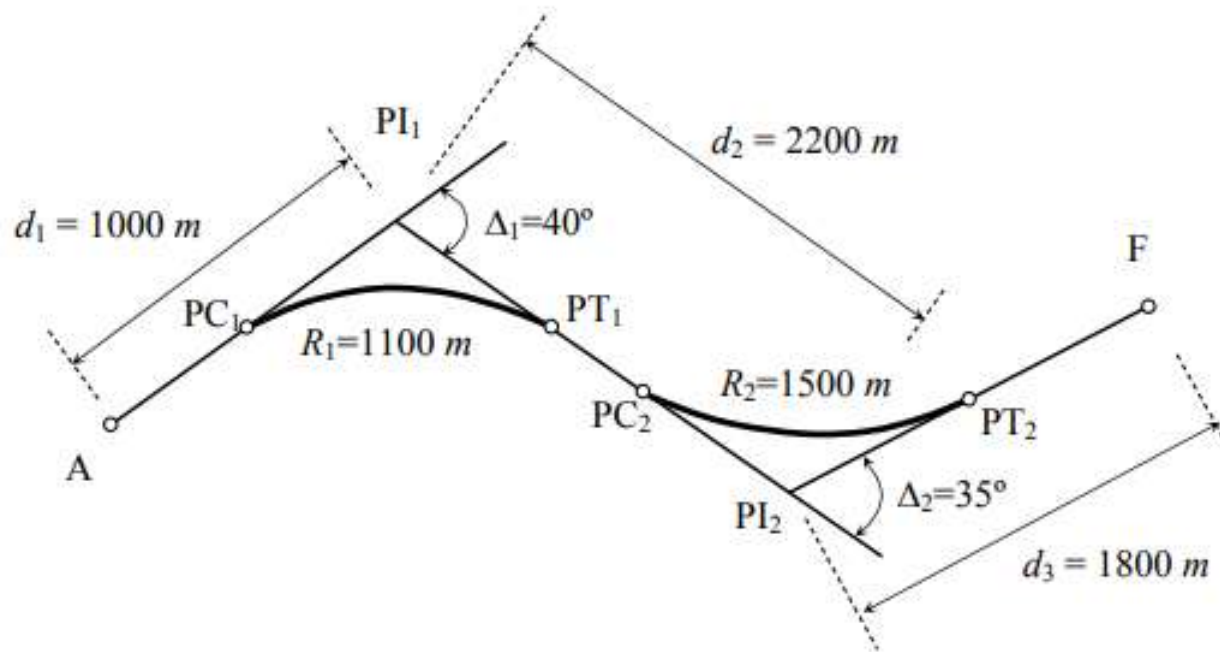
$$E(\text{PT}_2) = (136 + 17,21) + (41 + 17,76) = 178 + 14,97$$

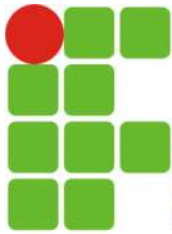
$$E(\text{F}) = E(\text{PT}_2) + d_3 - T_2 = (178 + 14,97) + (90 + 9,10) - (21 + 8,72) = 247 + 15,35$$





Ex. 02: A figura mostra a planta de um traçado com duas curvas circulares. Calcular as estacas dos pontos notáveis das curvas (PC, PI e PT) e a estaca inicial do traçado, sabendo que a estaca do ponto F é $540 + 15,00$.





Solução Ex. 02:

$$T_1 = 1100 \cdot \tan\left(\frac{40^\circ}{2}\right) = 400,37 \text{ m}$$

$$D_1 = \frac{\pi \cdot 1100 \cdot 40^\circ}{180^\circ} = 767,95 \text{ m}$$

$$T_2 = 1500 \cdot \tan\left(\frac{35^\circ}{2}\right) = 472,95 \text{ m}$$

$$D_2 = \frac{\pi \cdot 1500 \cdot 35^\circ}{180^\circ} = 916,30 \text{ m}$$

$$E(\text{PT}_2) = 10.815 - 1.800 + 472,95 = 9.487,95 \text{ m} = 474 \text{ est} + 7,95 \text{ m}$$

$$E(\text{PC}_2) = 9.487,95 - 916,30 = 8.571,65 \text{ m} = 428 + 11,65$$

$$E(\text{PI}_2) = 8.571,65 + 472,95 = 9.044,60 \text{ m} = 452 + 4,60$$

$$E(\text{PT}_1) = 9.044,60 - 2.200 + 400,37 = 7.244,97 \text{ m} = 362 + 4,97$$

$$E(\text{PC}_1) = 7.244,97 - 767,95 = 6.477,02 \text{ m} = 323 + 17,02$$

$$E(\text{PI}_1) = 6.477,02 + 400,37 = 6.877,39 \text{ m} = 343 + 17,39$$

$$E(\text{A}) = 6.877,39 - 1.000 = 5.877,39 \text{ m} = 293 + 17,39$$

