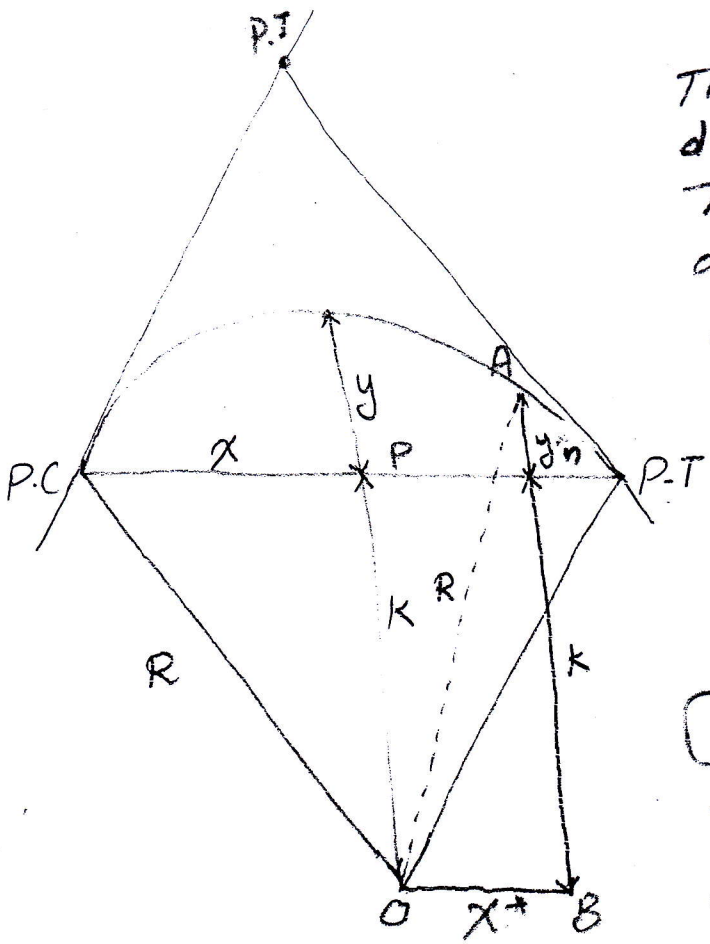
Method for setting out the curve

1) By tape and offset.
2) By angle and distance measurement.
3) By angle measurement only.

1) By tape and offset
- A. offsets from the long chord
- B. offsets from the tangent
- C. offsets from chord produced (by deflection distance).
- D. offsets from radius.

A. offsets from the long chord.



The major offset is y in Figure drawn below:

To find Equation for major offset by using the set equation below:

$$y = R - k \quad \text{.....(1)}$$

From trainyle OPRC

$$R^2 = k^2 + x^2 \Rightarrow k = \sqrt{R^2 - x^2} \quad \text{...(2)}$$

sub. Equation(2) into (1) the major offset y is:

$$y = R - \sqrt{R^2 - x^2} \quad \text{.....(3)}$$

To find another offset as follows:

$$y_n = AB - k \quad \text{.....(4)}$$

From trainyle ABO

$$R^2 = AB^2 + X^* \Rightarrow AB = \sqrt{R^2 - X^{*2}} \quad \text{...(5}$$

sub. Equation (5) into (4):

$$y_n = \sqrt{R^2 - X^{*2}} - k \quad \text{.....(6)}$$

Example) A road as simple circular curve with radius 40m and Long chord 60m. Calculate the offsets distance from the chord at 10m intervals.

Sol.

$$\text{major offset } (y) = R - \sqrt{R^2 - x^2}$$

$$= 40 - \sqrt{40^2 - 30^2} = 13.542\ m$$

$$k = R - y = 40 - 13.542 = 26.46\ m$$

offset y_1 ($x = 20$ from ℄ of curve)

$$y_1 = \sqrt{R^2 - x^2} - k$$

$$= \sqrt{40^2 - 20^2} - 26.46 = 8.18\ m$$

offset y_2 ($x = 10$ from ℄ of curve)

$$y_2 = \sqrt{R^2 - x^2} - k$$

$$= \sqrt{40^2 - 10^2} - 26.46 = 12.27\ m$$