Radius of Curvature

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RADIUS OF CURVATURE

K = curvature

$$\delta = \frac{1}{K}$$

- **Cartesian curve**

$$\delta = \frac{\left[1 + y_1^2\right]^{3/2}}{y_2}$$

$y_1 \rightarrow$ first derivative

$y_2 \rightarrow$ second derivative

- **Polar curve**

$$\delta = \frac{\left[r^2 + r_1^2\right]^{3/2}}{r^2 + 2r_1^2 - r r_2}$$

- **Parametric curves**

$$\delta = \frac{x_1^2 + y_1^2}{x_1 y_2 - x_2 y_1}$$

$\rightarrow$ all derivatives w.r.t to t