## Numerical Solution for the Line Curvature

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## Formular 1

The expression of curvature:

$$\kappa = \frac{\ddot{\vec{r}} \times \dot{\vec{r}}}{\left|\dot{\vec{r}}\right|^3} \tag{1}$$

In 2D:

$$\kappa = \frac{\ddot{\vec{r}} \times \dot{\vec{r}}}{\left|\dot{\vec{r}}\right|^3}$$

$$\kappa = \frac{x''y' - x'y''}{((x')^2 + (y')^2)^{3/2}}$$
(2)

## Usage