

For each of the following curves:

- Construct the position vector $\vec{r}$. It should have a single variable.
 - Determine $\hat{T}$ and $\hat{N}$.
 - Calculate $\frac{d^2\vec{r}}{dt^2} \cdot \hat{T}$ and $\frac{d^2\vec{r}}{dt^2} \cdot \hat{N}$ where t is the parameter you've chosen for the curve. These respectively are a_T and a_N .
1. $y = 2 - x^2$
 2. $x^2 + y^2 = 3$

Is it better to use polar or rectangular coordinates? Is there a difference when you calculate?