For each of the following curves:

- Construct the position vector $\vec{r}$. It should have a single variable.

- Determine $\hat{\boldsymbol{T}}$ and $\hat{\boldsymbol{N}}$.

- Calculate $\frac{d^2\vec{r}}{dt^2}\cdot\hat{\boldsymbol{T}}$ and $\frac{d^2\vec{r}}{dt^2}\cdot\hat{\boldsymbol{N}}$ 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?