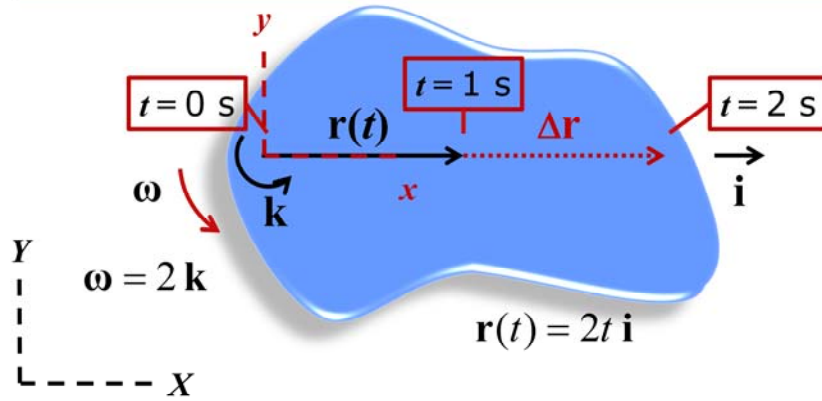


### Transformation of a Time Derivative: Exercise



$$\mathbf{r}(t) = 2t \mathbf{i}$$

$$\begin{aligned}\dot{\mathbf{r}}_{XY} &= \dot{\mathbf{r}}_{xy} + \boldsymbol{\omega} \times \mathbf{r} \\ &= 2 \mathbf{i} + 2 \mathbf{k} \times 2t \mathbf{i} \\ &= 2 \mathbf{i} + 4t \mathbf{j}\end{aligned}$$