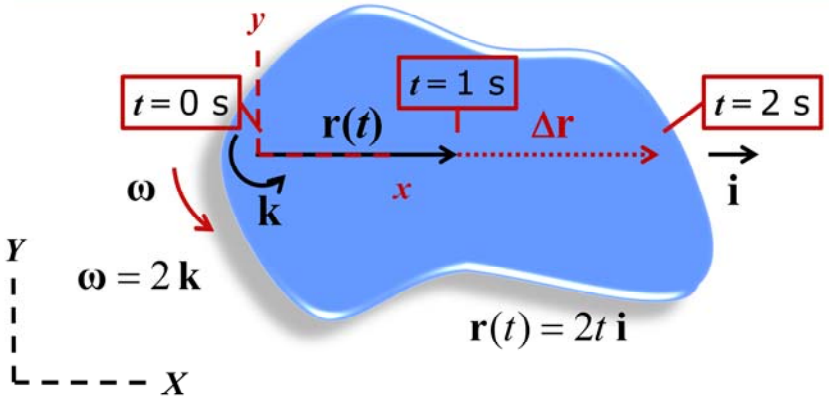
## Transformation of a Time Derivative: Exercise




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