## Homework H.2.A

Given: A square plate (having side lengths of $b=\sqrt{2} \mathrm{~m}$ ) rotates with a counterclockwise sense at a rate of $\Omega=5 \mathrm{rad} / \mathrm{s}$ about a shaft passing through corner O . At the position shown below, corner $B$ is directly above the shaft $O$.

Find: Consider the following two parts of this problem:
(a) For the first part, we are given that the rotation rate of the plate is changing at a rate of $\dot{\Omega}=$ $10 \mathrm{rad} / \mathrm{s}^{2}$. Determine the velocity and acceleration vectors for corners A and B of the plate. Make sketches of these vectors.
(b) For the second part, we are not given information on $\dot{\Omega}$. Instead, we know the acceleration of corner A to be in the negative y-direction (the x -component is zero), as shown in the figure below. For this, determine the numerical value of $\dot{\Omega}$ and of the acceleration vector for corner B. Make a sketch of the acceleration vector for corner B.


Part (a)


## Part (b)

