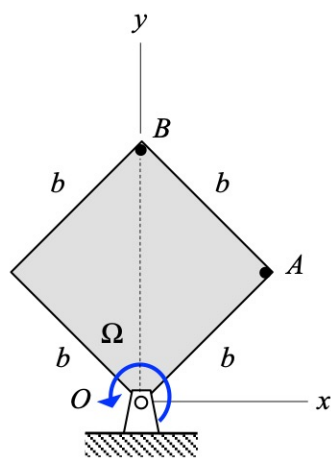
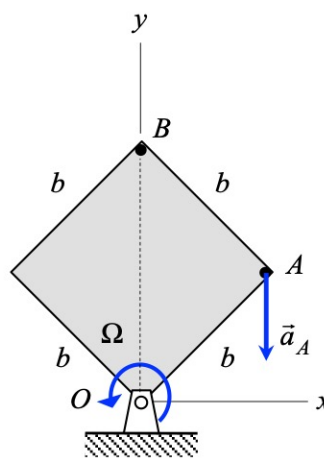


**Homework H.2.A**

**Given:** A square plate (having side lengths of  $b = \sqrt{2}$  m) rotates with a counterclockwise sense at a rate of  $\Omega = 5$  rad/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  $\dot{\Omega} = 10$  rad/s<sup>2</sup>. 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)**