

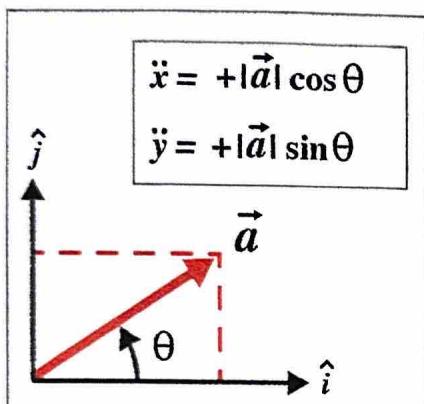
True

**True or False:**  $|\vec{a}| = |\vec{v}|$  if and only if the normal component of acceleration is zero, i.e.,  $v^2/\rho = 0$ , which occurs when the motion is straight-line ( $\rho = \infty$ ) OR when the particle is instantaneously at rest ( $v = 0$ ).

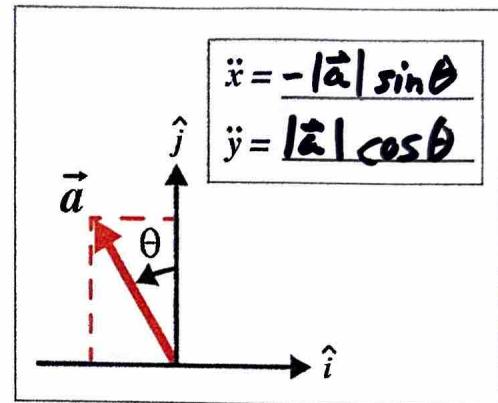
Hint: p. 37 in the lecture book

2. For each figure (b-d), determine the correct expressions for the Cartesian components of the acceleration vector ( $\vec{a} = \ddot{x} \hat{i} + \ddot{y} \hat{j}$ ). Express  $\ddot{x}$  and  $\ddot{y}$  in terms of the acceleration magnitude  $|\vec{a}|$  and the trigonometric functions  $\sin \theta$  and  $\cos \theta$ . Be mindful to include the correct sign for each component.

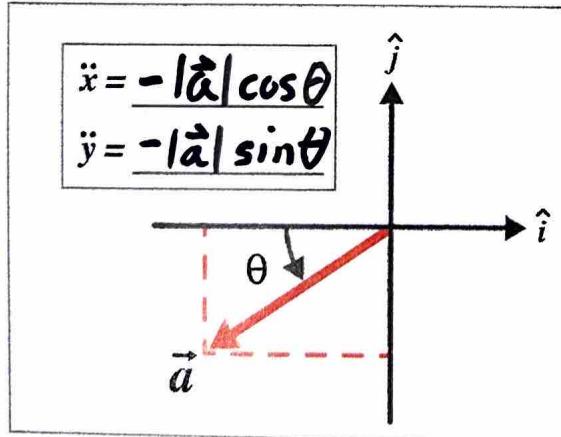
(a) Hint:



(b)



(c)



(d)

