

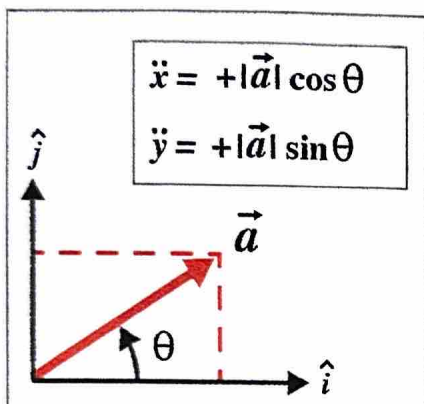
True

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 ($v = 0$).

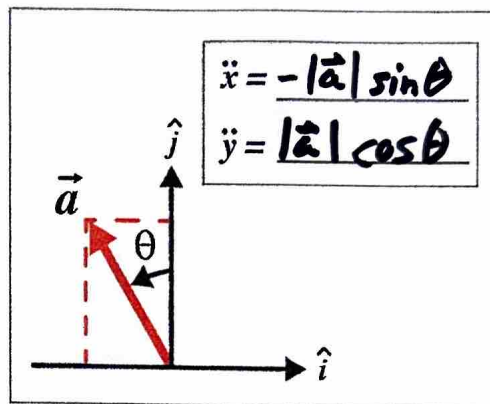
Hint: p. 37 in the lecture book

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.

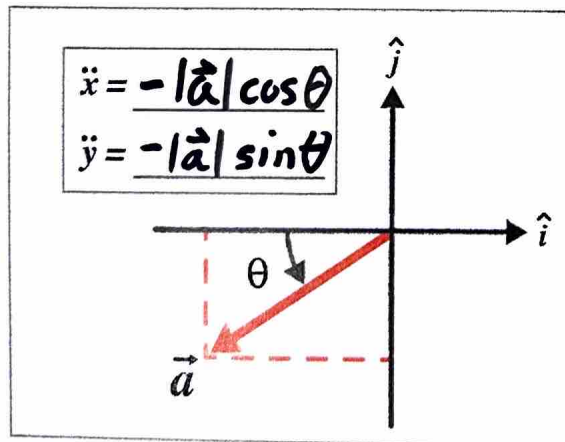
(a) Hint:



(b)



(c)



(d)

