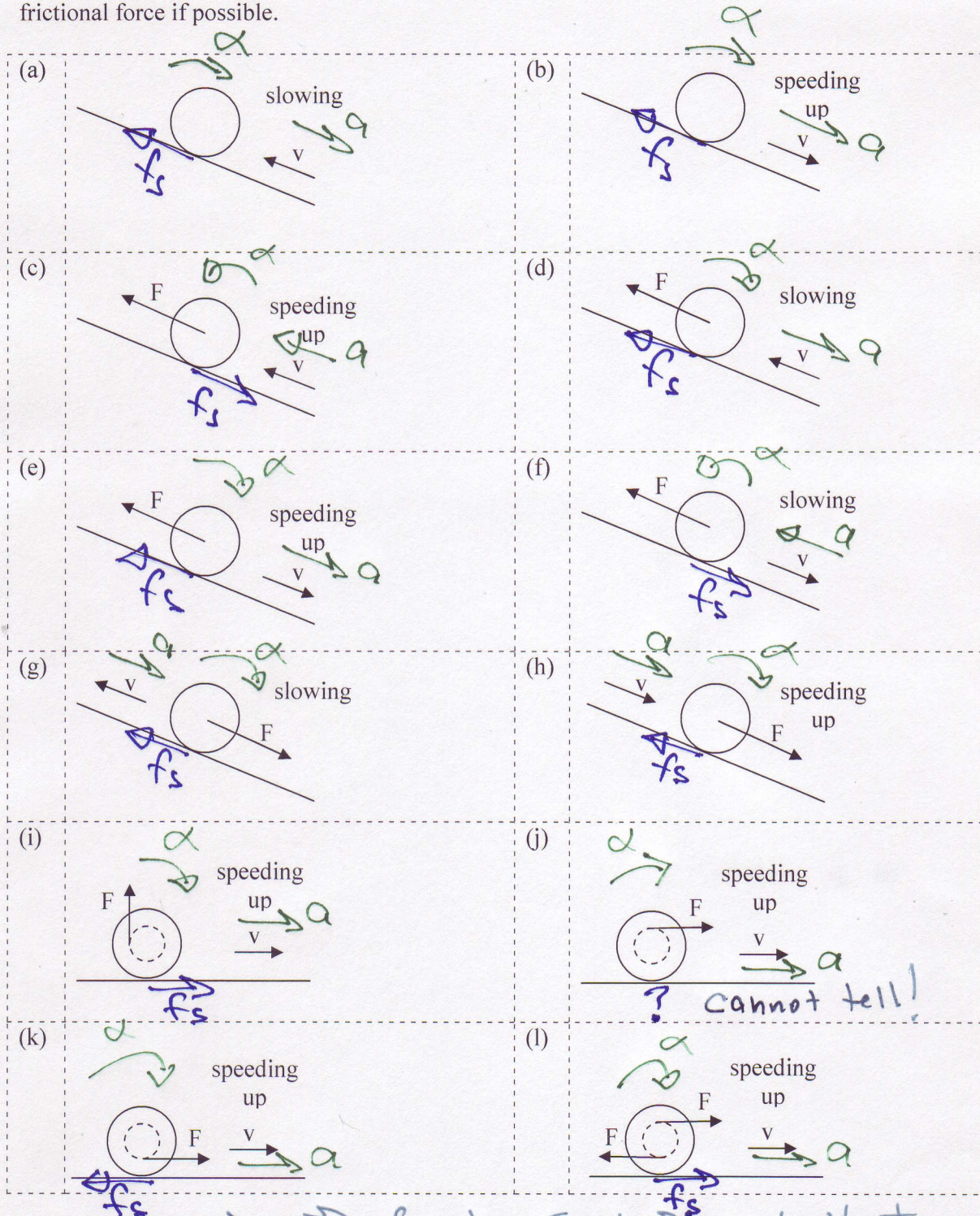


Consider the following objects which are rolling without slipping. Determine the direction of the frictional force if possible.



Establish $\vec{a}$ & $\vec{\alpha}$ first. Find f_s such that $\vec{F}_{net} = m\vec{a}$ & $\vec{\tau}_{net} = I\vec{\alpha}$. In (j) either direction agrees with Newton (unless know I, r, R). Bristle model is inconclusive. F pulling causes bristles to bend back. F twisting causes bristles to bend forward. Which is greater?