

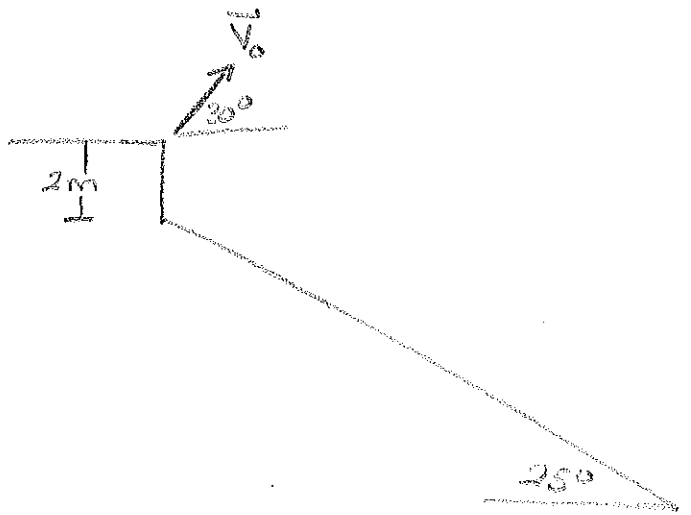
I. the motion of a particle P is a circular path of radius 3m. The particle travels at 3 m s^{-1} counterclockwise. Knowing that the speed is increasing at a rate of 0.5 m s^{-2} a) find the acceleration of P

b) Draw the acceleration vector

Solve using the normal/tangential as well as the polar reference frames. Compare the two results.

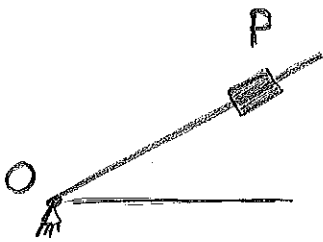
McNair National Guard

figure not to scale.



III. The collar P shown is sliding towards point O such that $OP = -5t^3 + 2$. At the same time the angle the bar makes with the horizontal is $\frac{1}{4}t$ rad.

- Find and draw
- the velocity of P
 - the acceleration of P



IV. Assume the rope does not stretch. Knowing that point A is moving with a speed of 10 m/s and an acceleration of 1 m/s^2 , find and draw the acceleration of point B. Take $r = 10 \text{ cm}$.

