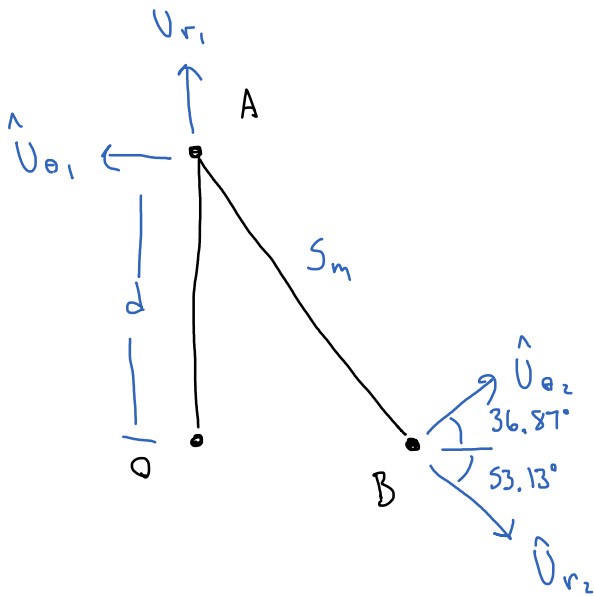
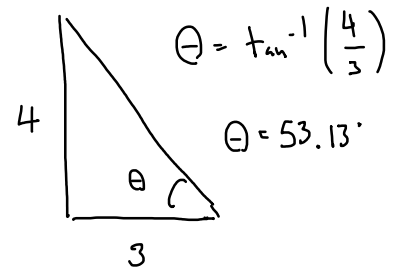
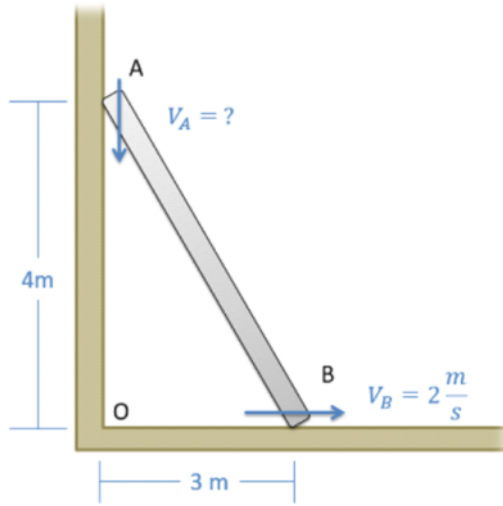


Problem 3

A ladder is propped up against a wall as shown below. If the base of the ladder is sliding out at a speed of 2 m/s, what is the speed of the top of the ladder?



$$\vec{v}_{B/O} = \vec{v}_{A/O} + \vec{v}_{B/A}$$

$$(2) \hat{i} = \dot{r}_1 \hat{U}_{r1} + r_2 \dot{\theta}_2 \hat{U}_{\theta2}$$

$$2 \rightarrow = \dot{d} \uparrow + (5)(\dot{\theta}_2) \triangle 36.87^\circ$$

$$x \quad Z = 5 \dot{\theta}_2 \cos(36.87)$$

$$y \quad Q = \dot{d} + 5 \dot{\theta}_2 \sin(36.87)$$

$$\dot{\theta}_2 = 0.5 \text{ rad/s}$$

$$\boxed{\dot{d} = -1.5 \text{ m/s}}$$