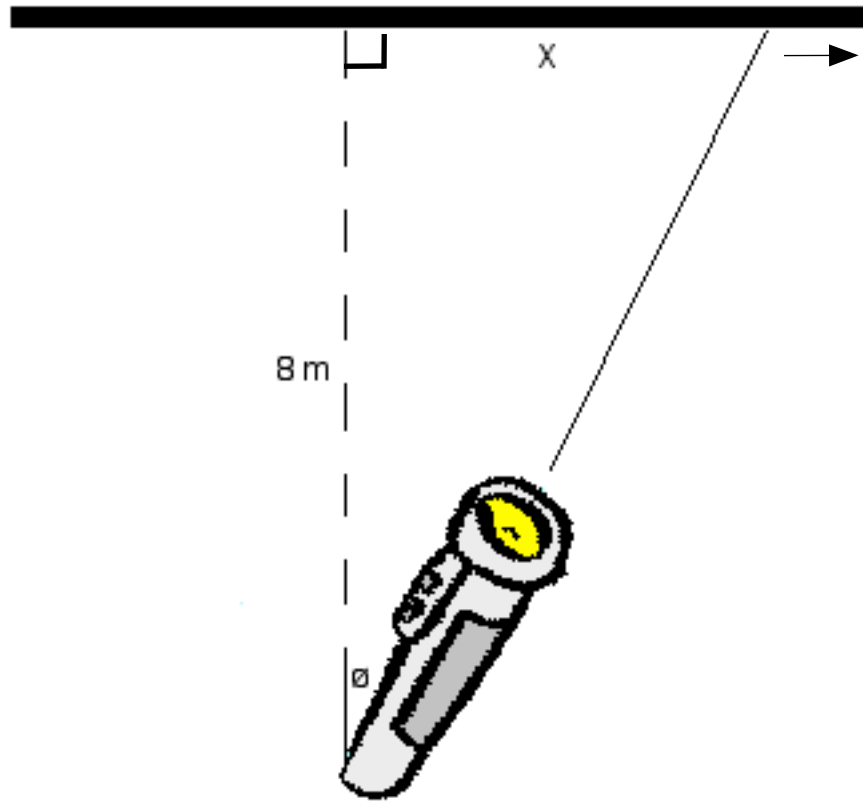


## The Flashlight Problem!



KC is shining his new flashlight along the classroom wall, which is 8 m from him at the nearest point. He is pretending to be a lighthouse (it runs in the family) and is turning at a constant rate of one revolution every 4 seconds.

- (a) Do you think that the beam of light is moving along the wall at a constant rate? Why or why not?

(b) Express the rate of change of angle  $\theta$  ( $d\theta/dt$ ) in radians per second.

(c) How fast is the beam of light moving when  $x = 15$  m

(c) How fast is the beam of light moving when  $x = 5$  m

(c) How fast is the beam of light moving when  $x = 1$  m

(d) When would the beam be moving fastest?

(e) When would the beam be moving slowest?