2D More Practice Problems

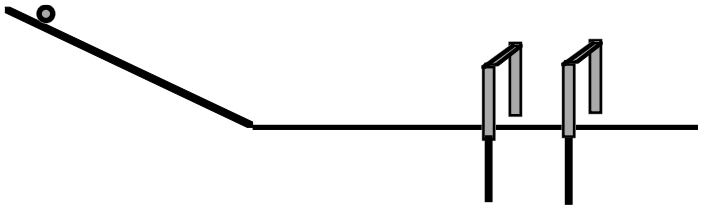
1. Suppose that an airplane flying 60 m/s, at a height of 300m, dropped a sack of flour. How far from the point of release would the sack have traveled when it struck the ground?

2. Tad drops his bowling ball out the car window 1.0 m above the ground while traveling down the road at 18 m/s. How far, horizontally, from the initial dropping point will the ball hit the ground? If the car continues to travel at the same speed, where will the car be in relation to the ball when it lands?

3. A student watches a ball pass through photogates placed 30 cm apart on a level and frictionless ramp. The ball then rolls off the ramp. The end of the ramp is 92 cm above the floor. When the ball hit the floor it struck a coin placed 25 cm from the end of the ramp.

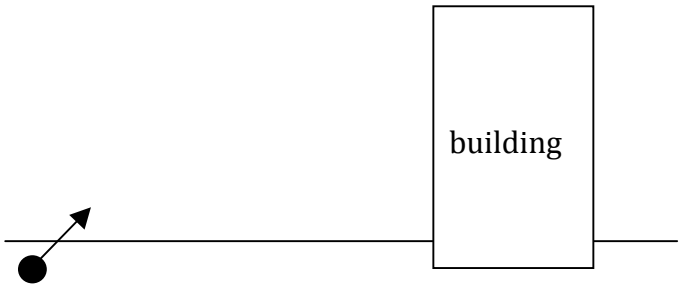
a) What was the ball's horizontal velocity?

b) How long did it take for the ball to pass through the photogates (still 30 cm apart)?



4. A water balloon is launched at a building 24 m away with an initial velocity of 18 m/s at an angle of 50° above the horizontal.

a. At what height will the balloon strike the building?



b. If the balloon misses the building, how far will the balloon land from its launch location?

c. The balloon can be launched from more or less than 24 m away from the building at the same speed and angle and still hit exactly the same height you calculated in part a. Determine this second launch location.