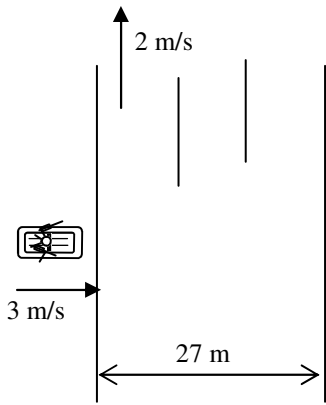
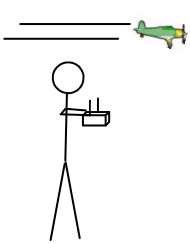


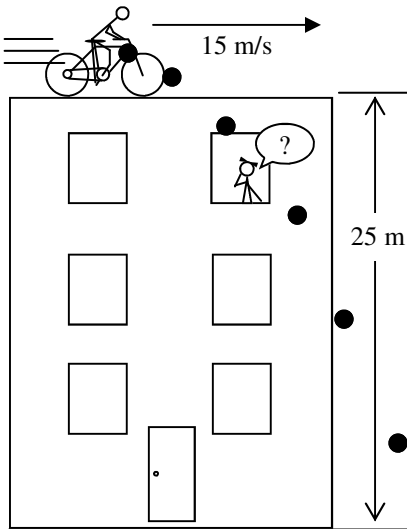
# 2011 PreAP Two Dimensions 11



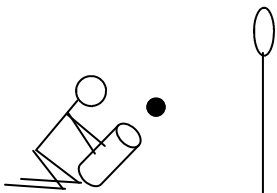
1. While rowing his boat, Slim Jim comes across an ocean current that is 27 m wide.
  - A. How fast would Jim be moving if he rowed with the current?
  - B. How long does it take for him to get across the current?
  - C. \* How far does the current carry him (how far up)?
  - D. \*What is his resulting velocity in the current (and direction, of course)?
  - E. \*If he wanted to go straight across, what angle would he need to aim his row boat?



2. \* Slim Jim is playing with his model airplane. The plane flies 8 m/s at direction of 75 degrees for 35 seconds. Then he turns the plane so that it is flying at a direction of 135 degrees for 18 seconds (at the same speed) until it runs out of fuel. How far (and at what direction) does Slim Jim have to walk to pick up his plane?



3. \* That crazy Slim Jim is riding along the top of a 25 m tall building going 15 m/s. He drops a ball to his dog Bim, below. How far away from where Slim Jim lets go of the ball does Bim catch the ball?



4. \* Slim Jim shoots a ball going 12 m/s at an angle of 55°. At the top of the ball's path it passes thru a hoop. How high is the hoop off the ground?

1C) 18 m      1D) 3.6 m/s at  $33.7^\circ$       1E)  $-41.8^\circ$   
2)  $x_{\text{total}} = -29.4$  m       $y_{\text{total}} = 372.3$  m      3) 33.9 m  
4) 4.9 m