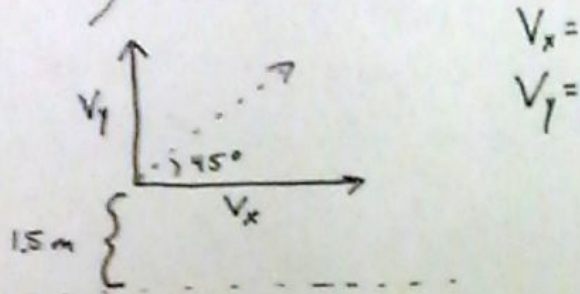


NAME:

Johnny Manziel throws a hail mary pass into the end zone. The ball leaves Johnny's arm at a height of 1.5 meters. He throws the football at 45° and a speed of 40 m/s .

A receiver catches the ball at a height of 1.5 meters.

1.) Draw and calculate the V_x and V_y components:



2.) How high the ball travel?

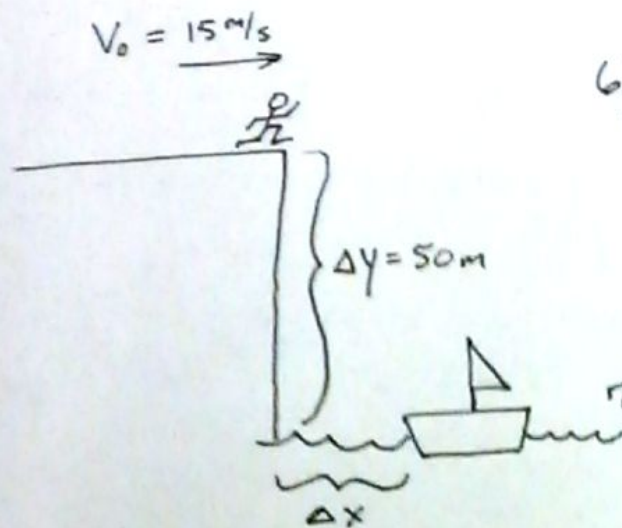
3.) How far horizontally did the ball travel?

4.) How much time did the ball spend in the air?

5.) a) If the receiver did not catch the ball and it fell to the ground, what would be impact speed?

b.) How much time would it spend in the air?

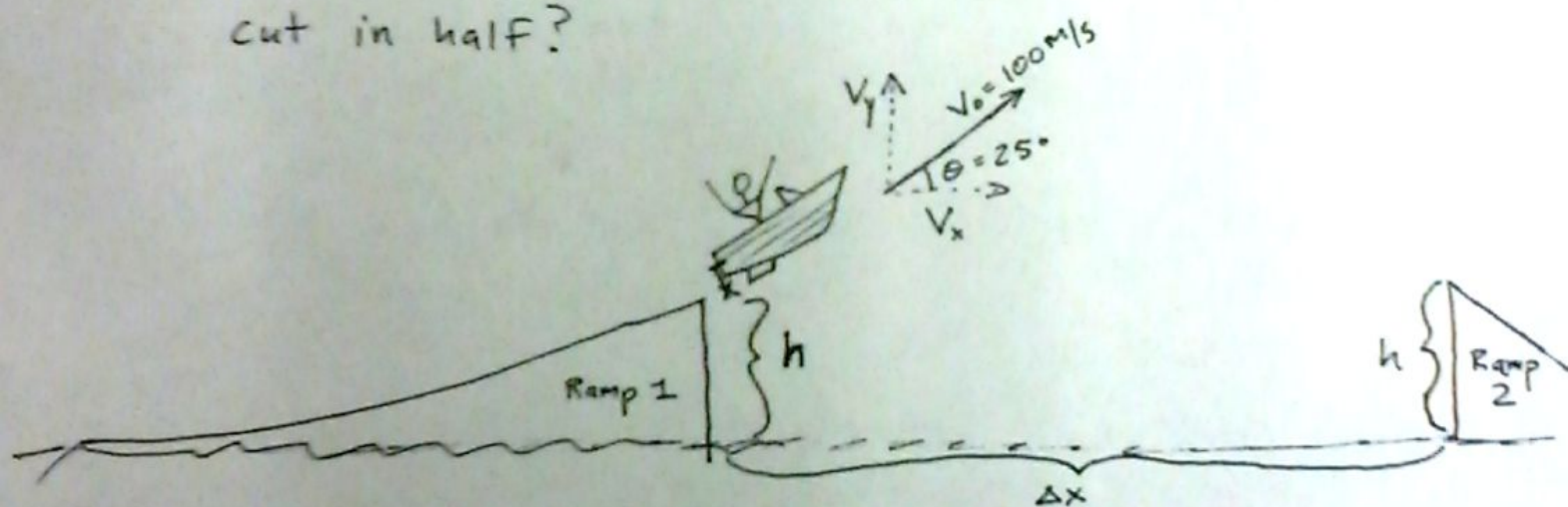
c.) How far would it travel horizontally?



6.) What is the maximum Δx in order for the man to land in the boat?

7.) How much time will the man spend in the air at the maximum Δx ?

8.) How much time will the man spend in the air if Δx were cut in half?



9.) Given that V_0 is 100m/s at 25° of the motor boat above, if the boat is in the air for 6 seconds what is Δx ?

10.) What would Δx need to be if Ramp 2 had a height twice that of Ramp 1. (Hint: your answer will not be a number)