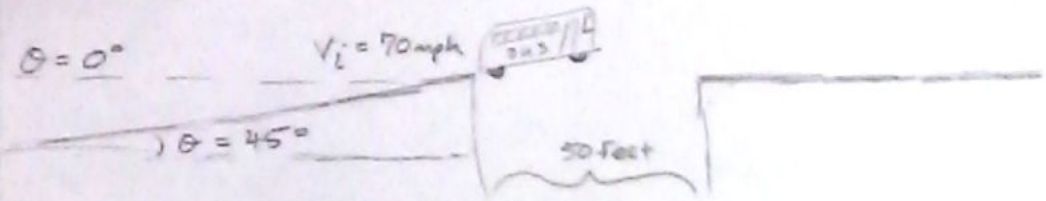
Speed "Bus Jump" Worksheet

Name:



1.) Convert feet to meters and mph to m/s.

2.) Using $t = \Delta x / v$ determine the minimum time the bus must be in the air? (Assume $\theta = 0°$ for now)

3.) Using $\Delta y = v_{y_i} t + \frac{1}{2} a_y t^2$ find the vertical displacement for the minimum air time.

4.) If $\theta = 45°$, draw the velocity x and y components at take off.

5.) How much time will the bus be in the air? $\theta = 45°$

6.) Will the bus make the 50ft horizontal distance if it lands at the same height as take off height? $\theta = 45°$

7.) How much further down would the landing height need to be inorder to successfully make the 50 ft jump if $\theta = 0°$? Calculate V_y impact velocity.