Questions

1. **Review Tables 1, 2 and 3 to answer the following questions.**
   Use proper equations in section "Theory" to answer "Why?" in each question.

   (a) Does flight range R depend on θ (the angle of the initial velocity above the horizontal)? Why?

   (b) Does flight range R depend on the initial velocity v_0 of the ball? Why?

   (c) Does y_{max} (the highest vertical position that the ball can reach) depend on θ? Why?

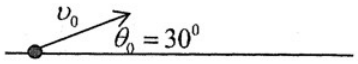
   (d) Does y_{max} depend on the initial velocity v_0 of the ball? Why?

(e) Does flight time T depend on θ (the angle of the initial velocity above the horizontal)? Why?

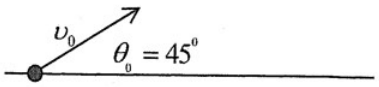
(f) At $\theta = 0^0$, does flight time T depend on the initial velocity υ_0 of the ball? Why?

2. Projectile motions with same υ_0 and $y_{initial} = y_{final}$, but with different initial angle θ_0. Which one in the following cases has the largest horizontal distance based on the formula $x - x_0 = \upsilon_0^2 \sin 2\theta_0 / g$ where $g = 9.8$ m/s²?

(a)

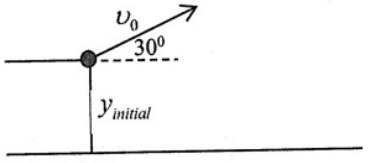


(b)



3. Projectile motions with same υ_0, but with different initial angle θ_0 and $y_{initial} \neq y_{final}$.
Which one in the following cases has the largest horizontal distance based on data collected in lab3?

(a)



(b)