

Questions

1. What are the units of the fitting parameters m and b ?
2. Based on the measured data in your Tables 1 to 4 answer the following questions:
 - (a) Does the measured $g(\text{exp})$ depend on the material (such as steel or plastic) of the ball?
 - (b) Does the measured $g(\text{exp})$ depend on the mass of the ball?
 - (c) Does the measured $g(\text{exp})$ depend on the size (diameter) of the ball?
 - (d) Does the measured $g(\text{exp})$ depend on the falling distance (h_s or h_g) of the balls?Give your reasoning for above answers using a proper theoretical formula.
3. A golf ball is dropped from a balcony 6.0 m above the ground.
 - (a) In how many seconds will it reach the ground?
 - (b) What is the velocity of the golf ball just before it strikes the ground?
4. Free fall in a vacuum: a steel ball and a pith ball with the same diameter are loaded into the top of a large drop tube, which is evacuated to create a very low-pressure environment. The two balls are released simultaneously from the same level to fall to the bottom of the tube. Which one of the following statements is true?
 - (a) Steel ball reaches the bottom first. Why?
 - (b) Pith ball reaches the bottom first. Why?
 - (c) Two balls reach the bottom simultaneously. Why?