***Honors Physical Science – Projectile Motion – Practice Problems***

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_\_

Equations

d = ½ at2 d = [(vi + vf)/2] t d = vit + ½ at2 2ad = vf2-vi2 vf = vi + at

v = d/t (uniform or constant velocity) d = vt

1. In her physics lab, Melanie rolls a 10g marble down a ramp and off the table with a horizontal velocity of 1.2 m/s. The marble falls in a cup placed 0.51 m from the table’s edge.
A) How high is the table?
B) What is the vertical velocity (vy) of the marble?
2. Bert is standing on a ladder picking apples in his grandfather’s orchard. As he pulls each apple off the tree, he tosses it into a basket that sits on the ground 3.0 m below at a horizontal distance of 2.0 m from Bert.
A) How fast must Bert throw the apples horizontally (vx) in order for them to land in the basket?
B) What is the vertical velocity (vy) of the apples?
3. Billy-Joe stands on the Talahatchee Bridge kicking stones in the water below. If Billy-Joe kicks a stone with horizontal velocity of 3.50 m/s and it lands in the water a horizontal distance of 5.40 m from where Billy-Joe is standing.
A) What is the height of the bridge?
B) If the stone had been kicked harder, how would this affect the time it would take to fall?
C) Assuming that the stone accelerates vertically at 9.8 m/s2, what is the velocity of the stone in the vertical direction?
4. Tad drops a cherry pit out the car window 1.0 m above the ground while traveling down the road at 18 m/s.
A) How far, horizontally, from the initial dropping point will the pit hit the ground?
B) What is the vertical velocity of the cherry pit?