

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

Class Period: \_\_\_\_\_

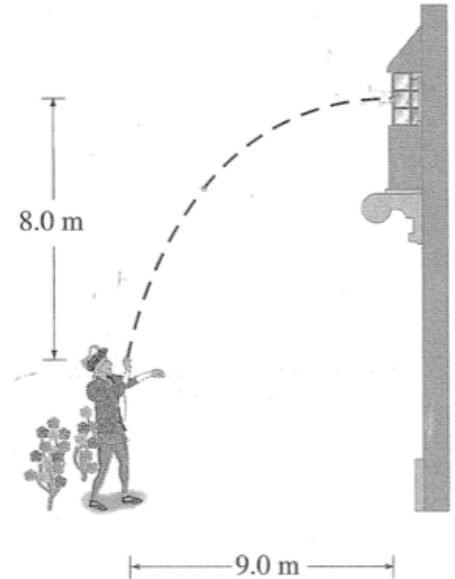
Projectile Motion: Bonus Problems

\*Set calculator to degrees

\*All work must be shown to receive full credit

Please show your work on a separate piece of paper.

1. Robin Hood is throwing rocks up towards Maid Marian's window. When the rocks hit her window, they are at the **highest point** of their motion. He is standing 9.00 m away from her window and the rocks rise to a maximum height of 8.00 m.
  - A. What will the y-velocity be at the highest point?
  - B. What is the initial velocity in the y-direction ( $v_{oy}$ )?
  - C. How long does it take for the rocks to hit her window?
  - D. What is the velocity in the x-direction?



2. Marlin and Nemo are on a search for Dory. To find her, they must jump up a waterfall. Brave Nemo starts a horizontal distance of 1.76 m away from a waterfall that is 0.55 m tall. If he leaps from the water with all his might at an angle of  $32.0^\circ$ , what must the initial velocity ( $v_o$ ) be at a **minimum** for him to make the jump?  
\*Consider, what do you know about the velocities if this is the **highest** point of the Nemo's jump?