

# Projectile Motion Review

**The test:** on Wed 10/28

- At what point of its flight is a projectile shot at an angle at its maximum height? \_\_\_\_\_
- Is  $\Delta y$  the same as  $V_{iy}$ ? \_\_\_\_\_
- Show what happens to the  $V_x$  and  $V_y$  during the flight of an angled projectile.



H or A?

- Tiger Woods is on the 16<sup>th</sup> hole at Pebble Beach Golf Course and hits a golf ball with a velocity of 40 m/s at an angle of 41° N of E.

- How far will the golf ball travel horizontally? (161 m)

$$\Delta x = \underline{\hspace{2cm}}$$

- Calculate the maximum height of the golf ball during his shot. (35 m)

$$\Delta y = \underline{\hspace{2cm}}$$

H or A?

- You are part of the Amazing Race and are attempting to land a projectile from a hot air balloon onto a bullseye. If you are in the hot air balloon 25 m above the bullseye and the balloon is traveling horizontally at 2.78 m/sec, how far ( $\Delta x$ ) before the bullseye should you release the projectile? (6.3 m)

$$\Delta x = \underline{\hspace{2cm}}$$

H or A?

- A baseball player hits a ball at an unknown angle N of E. If it is in the air for 6 sec total and travels 25 m horizontally, calculate the velocity in **miles per hour** and the angle it was hit at. (66.5 mph, 81.9° N of E)

$$V_x = \underline{\hspace{2cm}}$$

$$V_{iy} = \underline{\hspace{2cm}}$$

$$V = \underline{\hspace{2cm}} \text{ mph}$$

$$\theta = \underline{\hspace{2cm}}$$

7. A daredevil is shot out of a cannon at  $40^\circ$  N of E with a speed of 20 m/s. A net is placed at a horizontal distance of 35 meters. At what height above the cannon should the net be placed in order to catch the daredevil? (3.85 m)

H or A?

$$\Delta y = \underline{\hspace{2cm}}$$

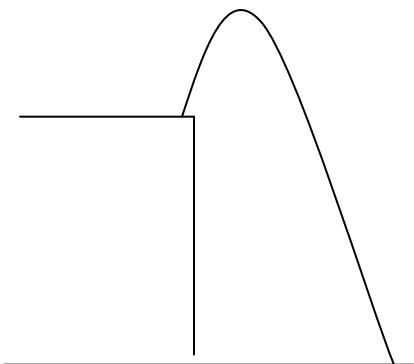
8. A cannon is fired horizontally with a  $V_x = 115$  m/s from the top of a cliff at a height of 201 meters. How far from the base of the cliff will the ball land? (737 m)

H or A?

$$\Delta x = \underline{\hspace{2cm}}$$

9. You shoot a potato gun at 30 m/s at  $42^\circ$  N of E off the edge of a cliff that is 31 meters high. With what speed will it hit the ground in **mph**? This is TRICKY! You will need to use projectile equations to find  $\Delta y$  at the top and then a 1-D equation to find the  $V_f$  at the bottom. (71.1 **mph**) (\*\*If you want to try another problem like this...change the angle to  $62^\circ$  N of E and resolve it. The answer should be 81 mph)

H or A?



$$V = \underline{\hspace{2cm}} \text{ m/s}$$

$$V = \underline{\hspace{2cm}} \text{ mph}$$