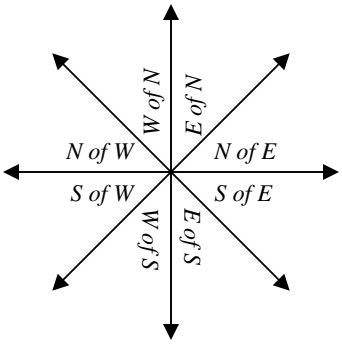
Due 9/29 PreAP



1. A bird takes off from the ground to avoid being captured by a fox. When it leaves the ground it is going 1 m/s at an angle of 30^o to the ground. It accelerates 0.5 m/s^2 for 5 seconds.
   A) The Symbiotic relationship between the fox and the bird is called:
   B) If the fox continues to pursue the bird (running beneath it) how far does the fox run?

   D) If the bird ends up in a tree, how high up did it land?

Projectile Motion:

2. When we threw objects into the air,
   A) which component (x or y) had an acceleration?
   B) What was the x-direction acceleration (a_x)?
   C) What was a_y?
   D) The y-direction is really only what kind of motion?

3. When you throw an object (projectile motion):
   A) Which direction stops the ball, x or y?
   B) Which will go farther a ball thrown from the ground or thrown from the roof?
   C) When you throw an object horizontally why doesn't it go very far?

   D) When you throw an object almost straight up, why doesn't it go very far?

4. A cannon fires from a 35 m tall cliff. What is Δy?
5. How high does the cannonball go?
   A) What is Vy_f?
   B) What is a_y?
6. When a projectile fires from the ground to the ground:
   A) What is Δy?
   B) How do Vx_i and Vx_f compare?
   C) How do Vy_i and Vy_f compare?

7. A cannonball is fired at 40 m/s at 50^o to the horizon. How far away will the cannonball will travel from where it was shot (its range)?

8. A person throws a ball from a 15 m tall roof at 12 m/s at 25º.
   Find the range of the ball. (You may need to do a bit more to find t.)

9. Since you know Vxfinal, use Vyfinal to find the actual Velocity of the ball when it hits the ground (put them back together and get your resultant's magnitude and direction.)

More on back

10. A baseball player hits a ball at 36º and 25 m/s. If the ball is hit 1.5 meters above the ground,
    A) Find how far away the ball lands.

    B) Find how high the ball went. (This is in the y-direction only.)