Physics

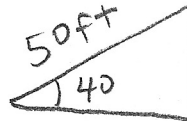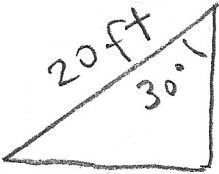| Name	Date	Period	#

<center>Basic trig and Vector Components   WS 10</center>

1. Find the x and y components of a vector with magnitude 50.0 at an angle of 33 degrees South of East.

2. Calculate the x and y components for the following triangles.

3. Calculate the resultant vector using the following instructions.   What is there final position relative to their initial position? The resultant vector needs both a distance and a direction.
   a. Walk 13 ft North.
   b. Walk 20.5 ft 47 degrees North of West.
   c. Walk 10. ft East.

4. A football is thrown with a speed of 8.00 m/s at an angle of 30 degrees relative to the horizontal.
   a. How long will the football be in the air before returning to the ground?
   b. How far will the football travel horizontally before returning to the ground?
   c. What other angle will result in the same horizontal distance traveled?

5. 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 out horizontally from the initial dropping point will the pit hit the ground?
   b. Draw a picture for the situation.
   c. If the car continues to travel at the same speed, where will the car be in relation to the pit when it lands?

6. While skiing, Ellen encounters an unexpected icy bump, which she leaves horizontally at ~~12.0~~ 15.0 m/s. How far out horizontally from her starting point will Ellen land if she drops a distance of ~~2.00~~ 8.50 m in the fall? Draw a picture.

7. A seal swims toward an inlet with a speed of 5.0 m/s as a current of 1.0 m/s flows in the opposite direction. How long will it take the seal to swim 100. m?