1. Bob and Ted start at the same place. Bob walks 20 meters West. After that he walks 30 meters at an angle of 30 degrees West of North. Ted walks 40 meters North. In component form, what is the vector from Ted's position to Bob's position?

2. A ball is thrown horizontally from the top of a building 35.0 m high. The ball strikes the ground at a point 80.0 m from the base of the building. Find the time that the ball is in flight and its initial velocity.

3. A boat has a speed relative to the water of 10 km/h. The river in which it moves has a velocity of 5 km/h due East as seen by an observer on the bank. What should be the heading of the boat relative to the bank if it is to head due North?

4. The velocity of a particle is given by: $\vec{V} = 8\,t^2\,\hat{\mathbf{i}} + 4\,t\,\hat{\mathbf{j}}$. Where V has units of meters/sec and t is in seconds. What is the acceleration of the particle at t = 0.5 seconds? Express your answer as the magnitude of the acceleration at the appropriate angle with respect to the positive x axis.

5. A car moving Eastward at a constant speed of 20.0 m/s, passes a stationary truck. One second after the car passes the truck, the truck begins to accelerate at a constant rate of 5.00 m/s/s in the Eastward direction. When does the truck overtake the car?