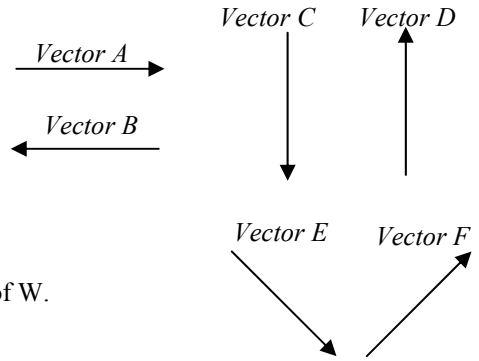
PreAP: due Fri, Sept 30 (Assigned: Wed, Sept 28)
Reg: due Mon., Oct 3 (Assigned: Thurs., Sept 29)

Projectile Motion 4



1. Using the vectors at the side do this graphical vector addition: B + 2C—E.

2. A plane is flying 32° N of W at 120 m/s. It encounters a wind going 25 m/s at 50° S of W. Find the _____ of these two vectors.

3. Will the plane in #2 above get to its destination ahead or behind schedule and why or why not?

4. A military ship fires on an enemy ship 610 m away. The projectile shell is launched at an angle of 75° and 250 m/s. Will the enemy ship be hit? Give proof one way or the other.

5. How long will it take the above projectile to reach its highest point?

6. A rocket fired at 38 m/s at 45° has engines that give 12 m/s^2 of acceleration. They can only fire for 18 seconds.
   A. To what altitude can the rocket reach before the engines cut out?

   B. How fast is the rocket going when the engines cut out?

7. Which of Newton's Laws apply?
   A. ___ Not accelerating as fast will use less force on the engine and save you gas money.
   B. ____ A car stays at constant speed unless you put on the brakes or apply more gas.
   C. ____ I push my knuckles on a table and my knuckles start to hurt.