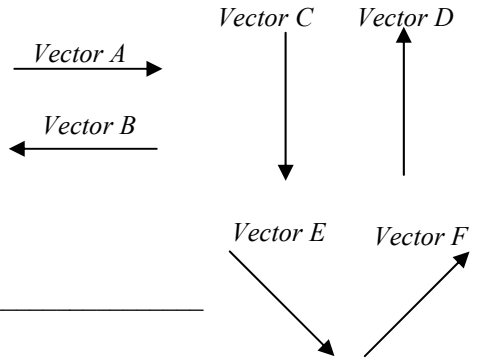
PreAP: due Tues, Oct 4 (Assigned: Fri, Sept 30)
Reg: due Wed., Oct 5 (Assigned: Mon., Oct 3)

Test Review

This homework is a bit longer to be sure that you are adequately prepared for the test on Tues and Wedn. You will need scratch paper for the longer problems. Simply write: "See other paper." Historically those that succeed on the test review succeed on the test. Take this seriously as a practice test. Come in for help as necessary!



1. Using the vectors at the side do this graphical vector addition: 2A + E – C –A.
2. The portion of the vector on the x or y axis (the x or y when we break up a vector): _____
3. To find the x– or y-component of a vector: _____
4. 35m/s at 40^o: Magnitude = _____; Direction = _____.
5. What you find by adding two vectors together: _____.
6. Something that has magnitude and direction: _____
7. A boat going 12 m/s at 30^o N of E is crossing a large river. The river current is going 4 m/s to the west. Find the final velocity vector of the boat.
8. Confirm or correct: "The kinematic equations will work with two dimensional motion."
9. If an object initially going 15m/s at 20^o N of E begins to feel an acceleration of 4 m/s^2 to the right. To find the resulting motion which do you do first: a) resolve into components; b) apply the kinematic equations in this direction?
10. An object initially going 20 m/s at 45^o applies its engines and accelerates at 3 m/s2 still at 45o. To find the resulting motion which do you do first: a) resolve into components; b) apply the kinematic equations in this direction?
11. A catapult releases a 12 kg rock going 34 m/s at 60^o. If the catapult launches from the ground find the rock's range.
12. A person standing on a 12 m second floor balcony shoots a rock from a sling shot at 35^o to the horizontal going 10 m/s. They are trying to hit a car 4 meters away. Will they hit it?
13. In front of the person is a 16 meter tall tree. Will the rock go high enough to clear the tree?
14. Identify the following as 1. free-fall; 2. projectile motion; 3. other.
    ____ a) a penny dropped onto the floor;
    ____ b) a ball thrown by a pitcher to homeplate;
    ____ c) a rocket firing its engines at 60^o;
    ____ d) a bullet shot from a gun horizontally.
15. A plane takes off from a runway at an angle of 50^o to the runway. Initially it is going 40 m/s. It accelerates along its path at 6 m/s.
    A) How long will it take the plane to reach its cruising speed of 130 m/s?

    B) How much altitude will it have when it reaches cruising speed?
16. Which of Newton's Laws apply?
    _____ When Mr. Murray jumps into the air to pull down the overhead screen he keeps in the air for a while (hang time).
    _____ A rocket can fly through space because gases are shot out of it backwards at high speed.
    _____ A catapult throws three rocks, the lightest one goes the farthest.
17. A person walks the lava beds at the foot of an ancient volcano. Do you expect them to find fossils? Why or why not?
18. Why on a map does Africa look like it fits like a puzzle along side South America?