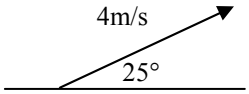
A-Day: Due Tues., 9/23 (Assigned: 9/19)
B-Day: Due Wed., 9/24 (Assigned: 9/22)

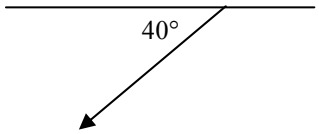
PreAP Two Dimensions 2

Make sure you wrote these on your equation chart: Vx = Vcosθ AND Vy = Vsinθ if all angles start from the + x axis.

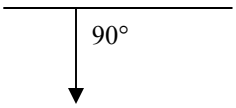


1. A. What is the magnitude of the vector at the right?
   B. What is the direction of the vector at the right?
2. For all vectors we must r_____ them into their x and y components.
3. For the following three vectors, give the angles starting from the +x axis.

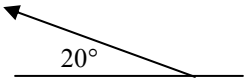
θ should = _____



θ should = _____

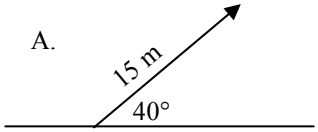


θ should= _____

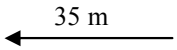


4. Resolve the following vectors into their x and y components (*remember that components can also be zero, negative*).

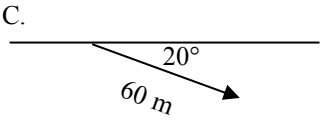
A.



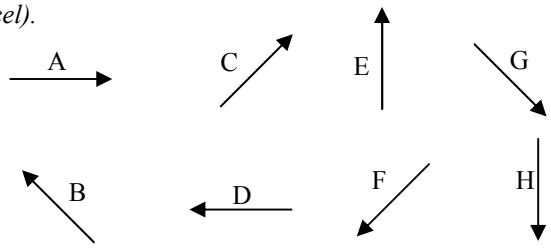
B.



C.



Use the vectors at the right to answer the following (hint: notice that some cancel).

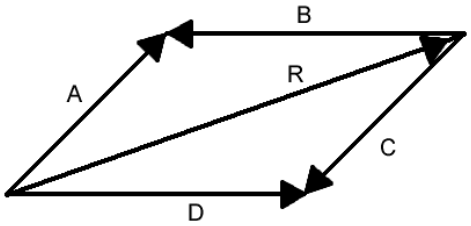


5. Which vector or vectors...

i.	_____–X and –Y components	o.	_____direction = –45°
j.	_____has –X and Y = 0	p.	_____direction = 135°
k.	_____have +X components	q.	_____x = y
l.	_____have –Y components	r.	_____= -C
m.	_____direction = 90°	s.	_____= -A
n.	_____direction = 180°	t.	_____direction = 0°

6. A + D + C + B + E =

7. Graphically do the following vector operations (draw these):
   A) E – F + 2D B) 2A − 2D − F



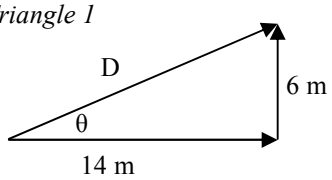
On the parallelogram at the right, R is the resultant. R starts at the bottom left and ends at the top right.

8. Give three combinations of vectors that would correctly produce R.
   (Hint: remember that vectors can be added in any order, can be subtracted, and can be moved.)

9. A) What is Vx?
   B) What is Vy?
   C) Calculate V's magnitude.

   D) Calculate V's direction (θ). (*Use trig*)

Triangle 1



10. A person walks 15 m west, 10 m north, 25 m east, 6 m south, then another 8 m north.
    A) Xt = B) Yt = C) Using Xt and Yt, draw the triangle:

    D) Calculate the resultant's magnitude and direction.

11. If an object is going 4 m/s for 10 seconds….
    A) How far did the object move?

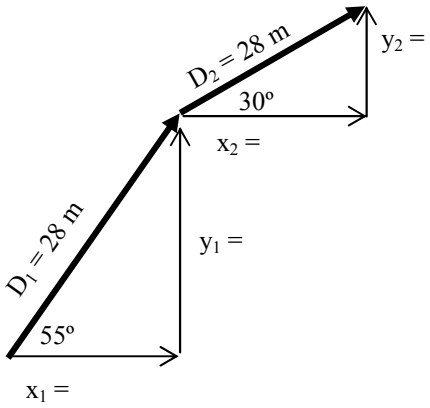
    B) If the object was actually moving at 30° (from the x-axis), how fast was it moving in the x direction? (*Find the x-component of the object's velocity.)*

    C) In the 10 seconds it moved, how far did it move in the x-direction?

12. Now let's combine what we know, step-by-step…
    A) Resolve vector 1 and 2 into their components. *(Now you have only x's and y's. YEA! And the rest of this problem is like #9, above.)*

    B) Find Xtotal: C) Find Ytotal:

    D) With Xtotal and Ytotal, draw your resultant's triangle below and calculate the resultant's magnitude and direction



Now on your own:

13. Add these vectors together, being sure that all angles start at the +x axis and keeping track of negatives.