

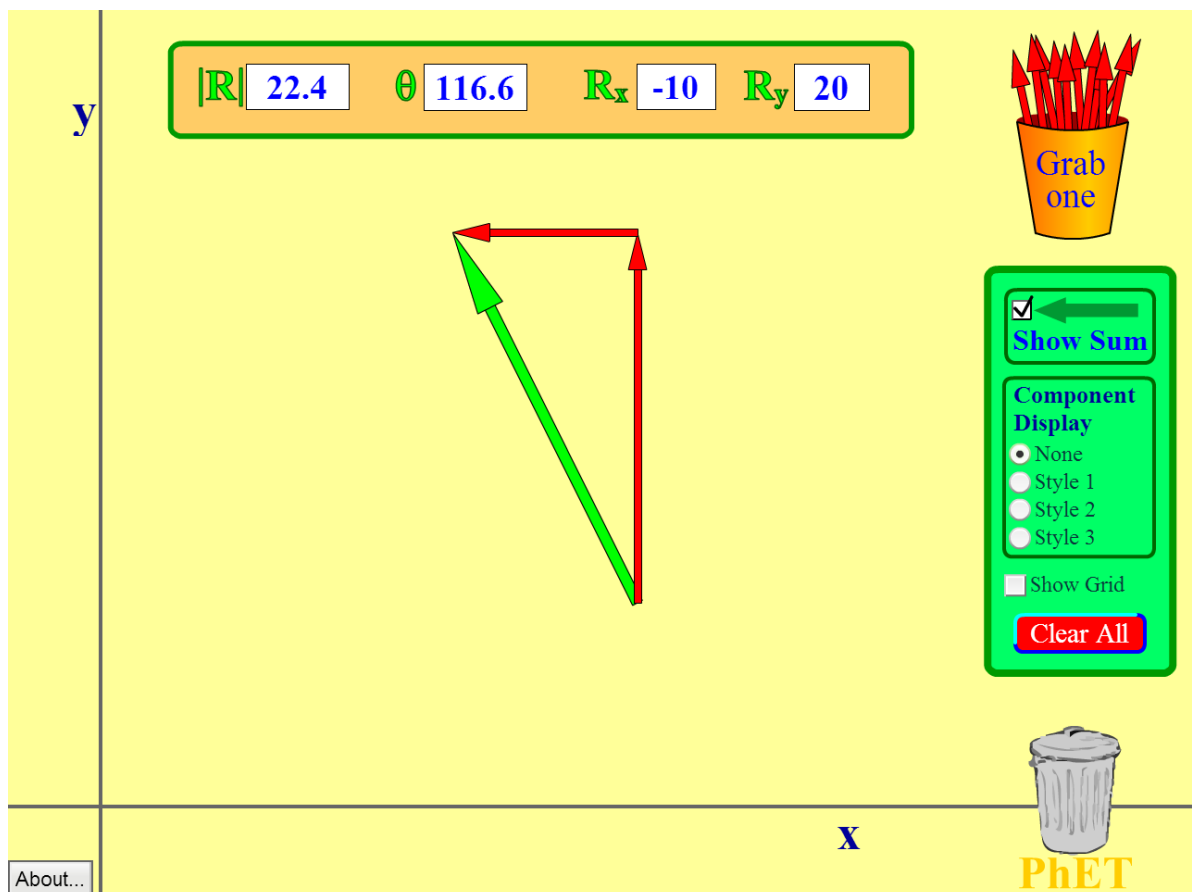
Answer on Question#50175 - Physics - Other

Procedures: Go to <http://www.colorado.edu/physics/phet>, click on "Simulations," and look for "Math Tools." Click on the "Vector Addition" sim.

To get a vector, grab an arrow from the bucket. The length of the vector is found in the $|R|$ box. The angle of the vector is in the θ box. Place the vectors you wish to add head to tail. To get the resultant vector, hit the big "SUM" button. Move the green sum vector so that the tail touches the tail of your first vector.

1. You go for a walk and take 20 steps in the north direction (90°). Use the simulation to represent your path. Draw and label your vector on your lab write-up.
 - a) Explain why this vector could also represent traveling at 20 mph in the north direction.
 - b) Next, you turn left and walk 10 steps to the west. Add the two vectors using the "sum" button. How far from where you started did you end up?

Solution:



- a) The vector aimed to the north could represent traveling at 20 mph in the north direction because it has all characteristics of the velocity of an object moving to the north at such speed: its magnitude equals 20 and it's aimed to the north.
- b) From the figure above we can see that the sum vector has the magnitude of 22.4, so it means that we ended up 22.4 steps away from where we started.