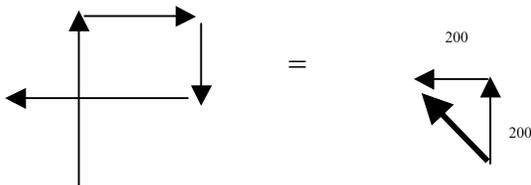


Vectors and Scalars:

Exercise 5: Rochelle is flying to New York for her big Broadway debut. If the plane heads out of Los Angeles with a velocity of 220 m/s in a northeast direction, relative to the ground, and encounters a wind blowing head-on at 45 m/s, what is the resultant velocity of the plane relative to the ground?

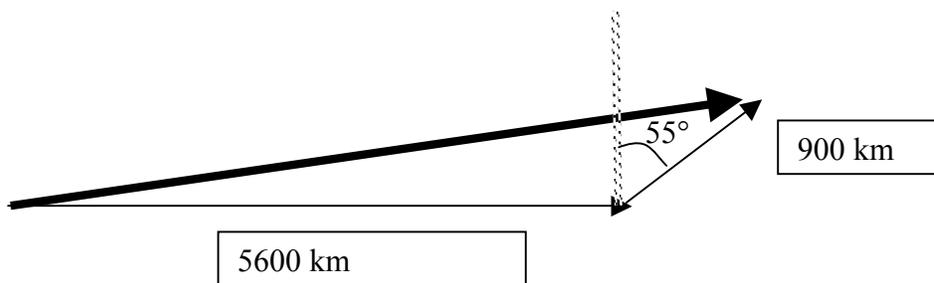
Her velocity is still NorthEast.... $220-45=175\text{m/s NorthEast}$.

Exercise 6: While Dexter is on a camping trip with his boy scout troop, the scout leader hands each boy a compass and map. The directions on Dexter's map read as follows: "Walk 500 m north, 200 m east, 300 m south, and 400 m west" If he follows the map what is Dexter's displacement? Solve graphically.



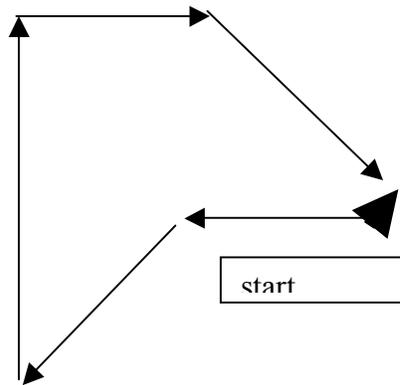
Dexter went (500m N -300m S = 200 N and 200m E – 400 m W =200 m West). He went exactly NorthWest (45 ° W of North or at a bearing of 315°) for 282.8 m .

Exercise 7: Arny flies due east from San Francisco to Washington D.C., a displacement of 5600 km. He then flies from Washington to Boston a displacement of 900 km at an angle of 55 degrees east of north. What is Arny's total displacement?



Resultant is 6358.2 km at an angle of 4.6° North of East

Exercise 8: Eli finds a map for a buried treasure. It tells him to begin at the old oak and walk 21 paces due west, 41 paces at an angle 45 degrees south of west, 69 paces due north, 20 paces due east, and 50 paces at an angle of 53 degrees south of east. How far from the oak tree is the buried treasure? Solve graphically.



Length of resultant is 0.125 paces at an angle of 37° N of E or essentially 0!!