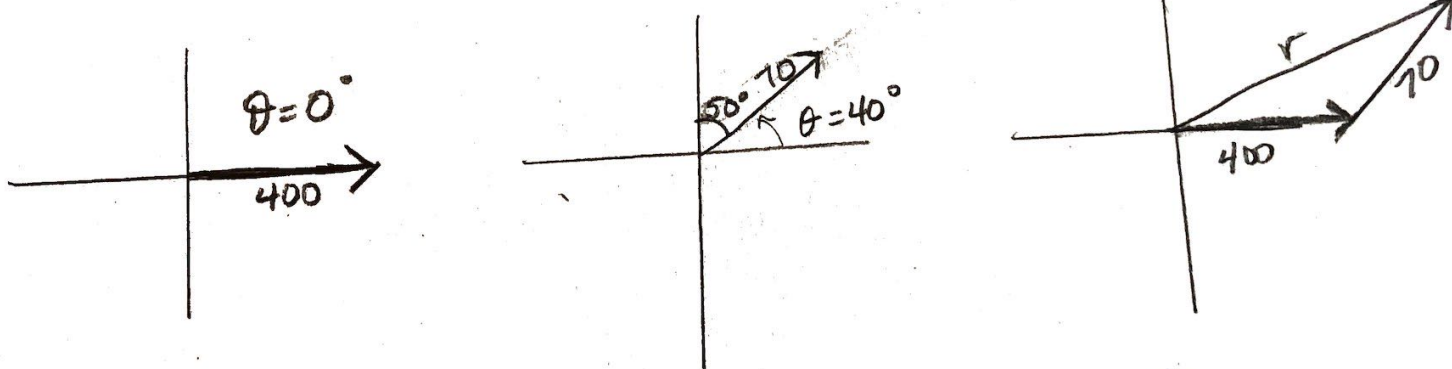


Warmup #11: Vector Applications

An airplane is traveling due east at a speed of 400 mph. The wind blows at 70 mph at an angle of N50°E. What is the resultant speed of the airplane? (Round to the nearest hundredth.)



$$\vec{v} = 400 \langle \cos 0^\circ, \sin 0^\circ \rangle + 70 \langle \cos 40^\circ, \sin 40^\circ \rangle$$

$$\vec{v} = \langle 453.62, 45 \rangle$$

$$\|\vec{v}\| = \sqrt{(453.62)^2 + (45)^2}$$

$$= 455.85 \text{ mph}$$