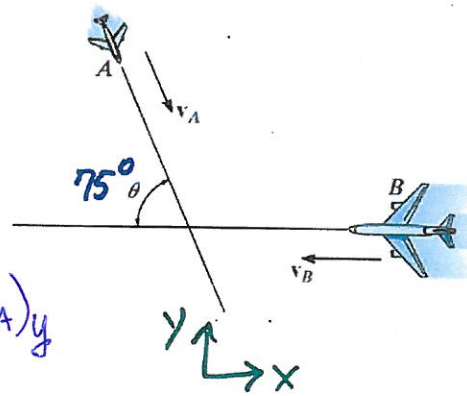**Problem 1: Particle Kinematics II**
Two planes, A and B, are flying at the same altitude. If their velocities are $v_A = 600$ km/h and $v_B = 500$ km/h such that the angle between straightline courses is $\theta = 75°$, determine the velocity of plane B with respect to plane A.
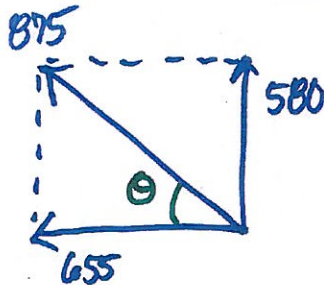
$$\vec{V}_B = \vec{V}_A + \vec{V}_{B/A}$$

$$X \rightarrow \quad -500 = 600 \cos 75 + (V_{B/A})_x$$

$$(V_{B/A})_x = -655 = 655 \text{ Km/h} \leftarrow$$

$$y \uparrow \quad 0 = -600 \sin 75 + (V_{B/A})_y$$

$$(V_{B/A})_y = 580 \text{ Km/h} \uparrow$$

$$|\vec{V}_{B/A}| = \sqrt{655^2 + 580^2} = 875 \text{ Km/hr}$$

$$\theta = \tan^{-1} \frac{580}{655} = 41.5°$$