

Because B is in the NW direction it has

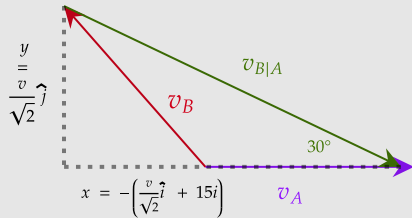
$$\cdot -\cos 45^\circ \text{ for } \hat{i} = -\frac{1}{\sqrt{2}}\hat{i}$$

$$\cdot \sin 45^\circ \text{ for } \hat{j} = \frac{1}{\sqrt{2}}\hat{j}$$

Both unit vectors some multiple of v

$$\cdot \cos 45 = \frac{x}{v_B} \quad \cdot v_B \cos 45 = x$$

$$\cdot y = v \cdot \frac{1}{\sqrt{2}}\hat{j} \quad \cdot x = v \cdot \frac{1}{\sqrt{2}}\hat{i}$$



$$\vec{v}_{B|A} = \vec{v}_B - \vec{v}_A$$

$$\vec{v}_{B|A} = -\frac{v}{\sqrt{2}}\hat{i} - 15\hat{i} + \frac{v}{\sqrt{2}}\hat{j}$$

$$\vec{v}_{B|A} = -\left(\frac{v}{\sqrt{2}}\hat{i} + 15\hat{i}\right) + \frac{v}{\sqrt{2}}\hat{j}$$

$$\tan 30 = \frac{1}{\sqrt{3}} = \frac{\frac{v}{\sqrt{2}}}{-\left(\frac{v}{\sqrt{2}}\hat{i} + 15\hat{i}\right) + \frac{v}{\sqrt{2}}\hat{j}}$$

$$\text{Solving for } v \text{ we get } v = \frac{15\sqrt{2}}{\sqrt{3} - 1} \approx 29 \text{ km/hr}$$