

Consider two vectors \vec{A} and \vec{B} and their resultant $\vec{A} + \vec{B}$. The magnitudes of the vectors \vec{A} and \vec{B} are, respectively, 15.6 and 6.2 and they act at 130° to each other. Find the magnitude of the resultant vector $\vec{A} + \vec{B}$.

Answer

$$|\vec{u} + \vec{v}| = \sqrt{|\vec{u}|^2 + |\vec{v}|^2 + 2|\vec{u}| \cdot |\vec{v}| \cdot \cos \alpha},$$

That's why

$$|\vec{A} + \vec{B}| = \sqrt{15.6^2 + 6.2^2 + 2 * 6.2 * 15.6 \cos 130} = 12,5$$