

C:(12 pts) Vector Addition

Add the two vectors \vec{A} and \vec{B} to get $\vec{C} = \vec{A} + \vec{B}$. Provide not only the cartesian components, but also the length and direction. Angles are measured in the counterclockwise direction from the positive x axis.

$$\vec{A}: A = 2, \theta_A = 100^\circ$$

$$\vec{B}: B = 3, \theta_B = -50^\circ$$

$$\bullet(3pts) C_x = \underline{\hspace{2cm}}$$

$$\bullet(3pts) C_y = \underline{\hspace{2cm}}$$

$$\bullet(3pts) C = \underline{\hspace{2cm}}$$

$$\bullet(3pts) \theta_C = \underline{\hspace{2cm}} (\text{accurate to } .01^\circ)$$

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$$\vec{A}: A = 2, \theta_A = 100^\circ$$

$$\vec{B}: B = 3, \theta_B = -50^\circ$$

$$\bullet (3\text{pts}) C_x = \underline{+1.58}$$

$$\bullet (3\text{pts}) C_y = \underline{-0.329}$$

$$\bullet (3\text{pts}) C = \underline{1.61}$$

$$\bullet (3\text{pts}) \theta_C = \underline{-11.74^\circ} \text{ (accurate to } .01^\circ \text{)}$$

$$A_x = A \cos \theta_A = -0.347296$$

$$A_y = A \sin \theta_A = +1.969616$$

$$B_x = B \cos \theta_B = +1.928363$$

$$B_y = B \sin \theta_B = -2.298133$$

$$C_x = A_x + B_x = \underline{+1.581066}$$

$$C_y = A_y + B_y = \underline{-0.328518}$$

$$C = \sqrt{C_x^2 + C_y^2} = \underline{1.614835}$$

$$\theta_C = \tan^{-1} \frac{C_y}{C_x} = \underline{-11.738043}$$