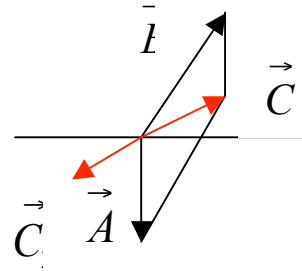


1.32 $B_x = 15 \times \sin 30^\circ = 7.5m$ $B_y = 15 \times \cos 30^\circ = 12.99m$

(a) $\vec{C}_1 = \vec{A} + \vec{B}$ $C_x = 7.5m$ $C_y = 12.99 - 8m = 4.99m$

$$|\vec{C}_1| = \sqrt{C_x^2 + C_y^2} = \sqrt{7.5^2 + 4.99^2} m = 9.01m$$

$$\tan \theta = \frac{C_y}{C_x} = \frac{4.99}{7.5} = 0.67 \quad \theta = 33.6^\circ$$



(b) $\vec{C}_2 = \vec{A} - \vec{B}$ $C_x = 7.5m$ $C_y = 12.99 + 8m = 20.99m$

$$|\vec{C}_2| = \sqrt{C_x^2 + C_y^2} = \sqrt{7.5^2 + 20.99^2} m = 22.29m$$

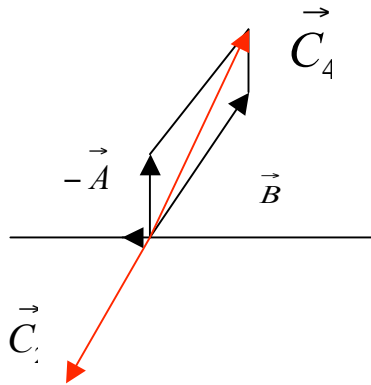
$$\tan \theta = \frac{C_x}{C_y} = \frac{7.5}{20.99} = 0.357 \quad \theta = 19.6^\circ \text{ West of South OR } \theta = 270 - 19.6^\circ = 250.4^\circ$$

(c) $\vec{C}_3 = -\vec{A} - \vec{B}$

$$|\vec{C}_3| = 9.01m \quad \theta = 33.6^\circ \text{ South of West OR } \theta = 180 + 33.6^\circ = 213.6^\circ$$

(d) $\vec{C}_4 = \vec{B} - \vec{A}$

$$|\vec{C}_4| = 22.29m \quad \theta = 19.6^\circ \text{ East of North OR } \theta = 90 - 19.6^\circ = 70.4^\circ$$



1.87

(1) $|\vec{A} \times \vec{B}| = |\vec{A}| |\vec{B}| \sin \theta$ (2) 90°

$$H = |\vec{A}| \sin \theta, \text{ area} = H |\vec{B}| \quad \text{area} = |\vec{A} \times \vec{B}|$$

