Introduction to Vectors Exit Quiz

Multiple choices

1. **Emily starts from the origin and walks $50\ m$ west. Then she walks $28\ m$ east. What is her displacement?**

   a.) $78\ m$ **b.) $-78\ m$**

   c.) $22\ m$ **d.) $-22\ m$**

2. **A scuba diver dives at an angle of $60°$ with the horizontal and swims $30\ m$ to the top of a reef. How far under water in meters is the top of the reef?**

   a.) $18\ m$ **b.) $24\ m$**

   c.) $36\ m$ **d.) $26\ m$**

3. **A car traveled $400\ km$ west, then $150\ km$ south, then $200\ km$ east, then $150\ km$ north. What distance did it travel in km?**

   a.) $900\ km$ **b.) $200\ km$**

   c.) $250\ km$ **d.) $550\ km$**

4. **Marry starts at the origin and walks 9 m along the x-axis. She then turns 90° and walks parallel to the y-axis for 12 m. How far in meters is she from the origin?**

   a.) $11\ m$ **b.) $13\ m$**

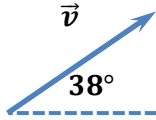   **c.) $15\ m$**   **d.) $28\ m$**

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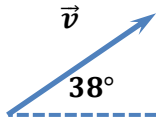**5. Find the magnitude of the horizontal and vertical components of each vector.**

19. $|\vec{v}| = 12$

$$\vec{v}$$

38°

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ANSWERS

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5. Find the magnitude of the horizontal and vertical components of each vector.

19. $|\vec{v}| = 12$

$$cos\ 38° = \frac{|\vec{x}|}{|\vec{v}|} \qquad\qquad sin\ 38° = \frac{|\vec{y}|}{|\vec{v}|}$$

$$|\vec{x}| = |\vec{v}| * cos\ 38° \qquad |\vec{y}| = |\vec{v}| * sin\ 38°$$

$$|\vec{x}| = 12 * 0.79 \qquad\qquad |\vec{y}| = 12 * 0.62$$

$$|\vec{x}| = 9.46 \qquad\qquad\quad |\vec{y}| = 7.38$$