What are the *x*– and *y*–components of the vector \vec{E} ?





ANSWERS ON

LAST PAGE

Q1.1

25.0°

 \vec{C} (12.0 m)







Consider the vectors shown. Which is a correct statement about $\vec{A} - \vec{B}$?

A. *x*-component > 0, *y*-component > 0 B. *x*-component > 0, *y*-component < 0 C. *x*-component < 0, *y*-component > 0 D. *x*-component < 0, *y*-component < 0 E. *x*-component = 0, *y*-component > 0



Q1.4



Which of the following statements is correct for *any* two vectors \vec{A} and \vec{B} ?

- A. the magnitude of $\vec{A} + \vec{B}$ is A + B
- B. the magnitude of $\vec{A} + \vec{B}$ is A B
- C. the magnitude of $\vec{A} + \vec{B}$ is greater than or equal to |A B|
- D. the magnitude of $\vec{A} + \vec{B}$ is greater than the magnitude of $\vec{A} \vec{B}$ E. the magnitude of $\vec{A} + \vec{B}$ is $\sqrt{A^2 + B^2}$



Which of the following statements is correct for *any* two vectors \vec{A} and \vec{B} ?

- A. the magnitude of $\vec{A} \vec{B}$ is A B
- B. the magnitude of $\vec{A} \vec{B}$ is A + B
- C. the magnitude of $\vec{A} \vec{B}$ is greater than or equal to |A B|
- D. the magnitude of $\vec{A} \vec{B}$ is less than the magnitude of $\vec{A} + \vec{B}$ E. the magnitude of $\vec{A} - \vec{B}$ is $\sqrt{A^2 + B^2}$





Consider the vectors shown.

- What are the components of the vector $\vec{E} = \vec{A} + \vec{D}$?
- A. $E_x = -8.00 \text{ m}, E_y = -2.00 \text{ m}$
- B. $E_x = -8.00$ m, $E_y = +2.00$ m

C.
$$E_x = -6.00 \text{ m}, E_y = 0$$

D. $E_x = -6.00 \text{ m}, E_y = +2.00 \text{ m}$

E.
$$E_x = -10.0 \text{ m}, E_y = 0$$

Q1.7





Consider the vectors shown.

What is the dot product $\vec{C} \cdot \vec{D}$?

A. (120 m²) cos 78.0° B. (120 m²) sin 78.0° C. (120 m²) cos 62.0° D. (120 m²) sin 62.0°

E. none of these

Q1.8





Consider the vectors shown.

What is the cross product $\vec{A} \times \vec{C}$?

A. (96.0 m²) sin 25.0° \hat{k} B. (96.0 m²) cos 25.0° \hat{k} C. -(96.0 m²) sin 25.0° \hat{k} D. -(96.0 m²) cos 25.0° \hat{k} E. none of these Consider the two vectors

$$\vec{A} = 3\hat{i} + 4\hat{j}$$
$$\vec{B} = -8\hat{i} + 6\hat{j}$$

What is the dot product $\vec{A} \cdot \vec{B}$?

A. zero

- **B.** 14
- C. 48
- D. 50
- E. none of these



Consider the two vectors $\vec{A} = 3\hat{i} + 4\hat{j}$ $\vec{B} = -8\hat{i} + 6\hat{j}$ What is the cross product $\vec{A} \times \vec{B}$? A. $6\hat{k}$ B. $-6\hat{k}$ C. $50\hat{k}$ D. $-50\hat{k}$ E. none of these



Consider the two vectors

$$\vec{A} = 3\hat{i} - 4\hat{j}$$
$$\vec{B} = 6\hat{k}$$

What is the dot product $\vec{A} \cdot \vec{B}$?

A. zero B. -6 C. +6 D. 42 E. -42



Consider the two vectors

$$\vec{A} = 3\hat{i} - 4\hat{j}$$
$$\vec{B} = 6\hat{k}$$

What is the cross product $\vec{A} \times \vec{B}$?

A. zero
B.
$$24\hat{i} + 18\hat{j}$$

C. $-24\hat{i} - 18\hat{j}$
D. $-18\hat{i} + 24\hat{j}$
E. $-18\hat{i} - 24\hat{j}$

ANSWERS for Q1.

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