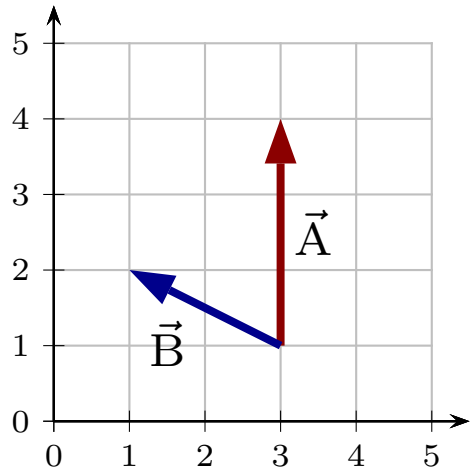
Question 1

Consider the illustrated vectors $\vec{\mathrm{A}}$ and $\vec{\mathrm{B}}$.

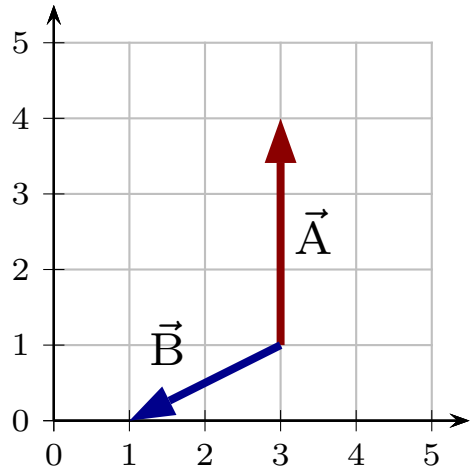


Which of the following is true?

1. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = -3$
2. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = 3$
3. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = 3\,\hat{\mathrm{i}}$
4. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = -3\,\hat{\mathrm{i}}$
5. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = 6$
6. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = -6$

Question 2

Consider the two vectors $\vec{A}$ and $\vec{B}$ as illustrated.

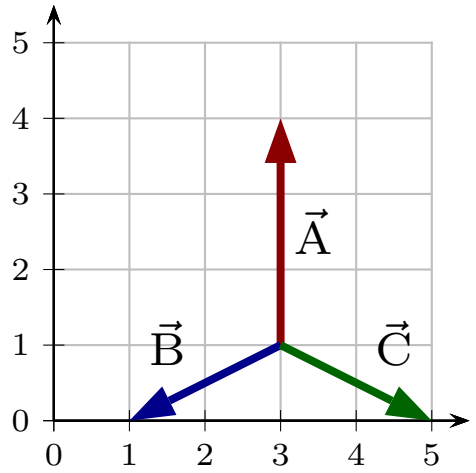


Which of the following is true?

1. $\vec{A} \cdot \vec{B} = -3$
2. $\vec{A} \cdot \vec{B} = 3$
3. $\vec{A} \cdot \vec{B} = 4$
4. $\vec{A} \cdot \vec{B} = -4$
5. $\vec{A} \cdot \vec{B} = 6$
6. $\vec{A} \cdot \vec{B} = -6$

Question 3

Consider the illustrated vectors $\vec{\mathrm{A}}, \vec{\mathrm{B}}$ and $\vec{\mathrm{C}}$.



Which of the following is true?

1. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = \vec{\mathrm{A}} \cdot \vec{\mathrm{C}}$
2. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = -\vec{\mathrm{A}} \cdot \vec{\mathrm{C}}$
3. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} \neq \vec{\mathrm{A}} \cdot \vec{\mathrm{C}}$

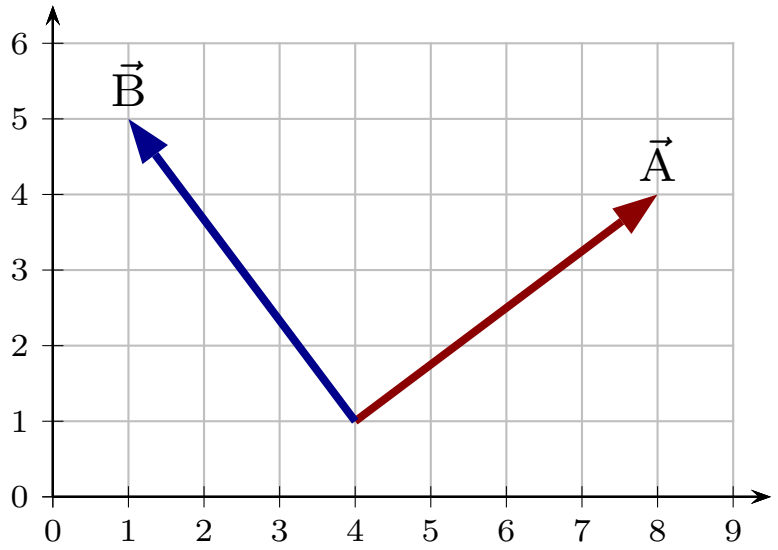
Warm Up Question 1

Consider the vectors $\vec{A} = 10\hat{i}, \vec{B} = 20\hat{j}, \vec{C} = 2\hat{j}, \vec{D} = 10\hat{j}$. Is $\vec{A} \cdot \vec{B}$ larger than, smaller than or equal to $\vec{C} \cdot \vec{D}$? Explain your answer.

1. $\vec{A} \cdot \vec{B}$ is larger since the vectors are larger.
2. $\vec{A} \cdot \vec{B}$ is smaller since their dot product is zero.
3. They are both zero.

Question 4

Consider the illustrated vectors $\vec{\mathrm{A}}$ and $\vec{\mathrm{B}}$.



Which of the following is true?

1. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = 25$
2. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = 25\hat{\mathrm{i}}$
3. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = -25$
4. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = -25\hat{\mathrm{i}}$
5. $\vec{\mathrm{A}} \cdot \vec{\mathrm{B}} = 0$

Phys 131: S23 Class 23

Warm Up Question 2

A person holds a large fish suspended from a string. The person walks horizontally at a constant speed and during this time the string hangs vertically. Does the work done by the string/person on the fish depend on the distance walked by the person? Explain your answer.

1. Does depend. Works depends on Δr.
2. Does not depend. The force and displacement are perpendicular.
3. Does not depend. The fish moves at constant speed.
4. Does not depend. Tension and gravitational force cancel.