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Points 100  **Published**

Details

Questions

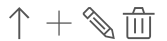
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Group 1

Group Name

Pick 8 questions, 10 pts per question Pick questions, pts per

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Question 1 pts



if vector **a** and vector **b** are the vectors forming consecutive sides of a rectangle ABCD, then the vector representing the side CD is:

- a. \vec{a}
- b. \vec{b}
- c. $-\vec{b}$
- d. None of the above

☐ c☐ a☐ b☐ d

Question 1 pts



Given a vector $\vec{a} = (2, 3, 1)$ what is the vector with unit magnitude and the same direction as \vec{a} ?

☐ $\left(\frac{2}{\sqrt{14}}, \frac{3}{\sqrt{14}}, \frac{1}{\sqrt{14}} \right)$

☐ $\left(\frac{2}{\sqrt{6}}, \frac{3}{\sqrt{6}}, \frac{1}{\sqrt{6}} \right)$

☐ $(2, 3, 1)$

☐ None of the given



Question 1 pts



What is the scalar product between two vectors $\vec{a} = 5\hat{i} - \hat{j} - 3\hat{k}$ and $\vec{b} = 2\hat{i} - 3\hat{j} + 2\hat{k}$?

☐ 7

☐ 9

☐ 10

☐ 14



Question 1 pts



Given the vectors $\vec{a} = (5, -1, -3)$ and $\vec{b} = (1, 3, -5)$, What is the angle in radian in between the vectors $(\vec{a} + \vec{b})$ and $(\vec{a} - \vec{b})$?

☐ $\frac{\pi}{2}$

☐ 0

☐ $\frac{\pi}{4}$

☐ $\frac{\pi}{6}$



Question 1 pts



If two vectors $5\vec{a} + k\vec{b}$ and $8\vec{a} + 2\vec{b}$ are parallel then find the value of k?

- ☐ 5/4
- ☐ 5/9
- ☐ 5/8
- ☐ none of the given



Question 1 pts



Given two vectors \vec{a} and \vec{b} , what is the projection of \vec{a} on \vec{b} ?

- ☐ $\frac{\vec{a} \cdot \vec{b}}{|\vec{b}|}$
- ☐ $\frac{\vec{a} \cdot \vec{b}}{|\vec{a}|}$
- ☐ $\frac{\vec{b}}{|\vec{a} \cdot \vec{b}|}$
- ☐ None of the given



Question 1 pts



If θ is the angle between two vectors \vec{a} and \vec{b} , if $\vec{a} \cdot \vec{b} = 0$ then what is the value of θ ?

- ☐ $\frac{\pi}{2}$
- ☐ $\frac{\pi}{4}$
- ☐ 0
- ☐ None of the above



Question 1 pts



The projection of vector $\vec{a} = 3\hat{i} + 2\hat{j} + \hat{k}$ on vector $\vec{b} = 2\hat{i} - 3\hat{j} + \hat{k}$ is

- ☐ $\frac{1}{14}$
- ☐ 14

☐ $\frac{1}{7}$

☐ -14



Question 1 pts



The displacement vector of the particle when it has traveled from point P(2,3,5) to Q(3,4,5) will be?

☐ $\vec{i} + \vec{j}$

☐ $\vec{i} + \vec{j} + 5\vec{k}$

☐ $\vec{i} + \vec{j} - 5\vec{k}$

☐ None of the given


Question 1 pts



A(2,-1,1) B(1,-3,-5) and C(3,-4,-4) are the vertices of triangle ABC, Which of the following is the correct length of the side?

☐ $|\vec{AB}| = \sqrt{41}, |\vec{BC}| = \sqrt{6}, |\vec{CA}| = \sqrt{35}$

☐ $|\vec{AB}| = \sqrt{31}, |\vec{BC}| = \sqrt{6}, |\vec{CA}| = \sqrt{35}$

☐ $|\vec{AB}| = \sqrt{41}, |\vec{BC}| = \sqrt{6}, |\vec{CA}| = \sqrt{33}$

☐ $|\vec{AB}| = \sqrt{41}, |\vec{BC}| = \sqrt{9}, |\vec{CA}| = \sqrt{35}$



Question 1 pts



Given two vectors \vec{a} and \vec{b} , which of the following inequalities are true?

☐ $|\vec{a} + \vec{b}| \leq |\vec{a}| + |\vec{b}|$

☐ $|\vec{a} \cdot \vec{b}| \leq |\vec{a}| |\vec{b}|$

☐ $|\vec{a} \cdot \vec{b}| \geq |\vec{a}| |\vec{b}|$

☐ $|\vec{a} + \vec{b}| \geq |\vec{a}| + |\vec{b}|$



Group 2

Pick 1 questions, 20 pts per question Pick questions, pts per

question





Question 1 pts



Given the points A(2,-1,1), B(1,-3,-5), and C(3,-4,-4), then which of the following options are correct?

- ☐ ABC are the vertices of a right-angled triangle
- ☐ ABC are the vertices of a isosceles triangle triangle
- ☐ ABC are the vertices of an equilateral triangle
- ☐ None of the given answers is correct



Question 1 pts



The area of a triangle whose vertices are A(1,1,1), B(1,2,3), C(2,3,1) is?

- ☐ $\frac{1}{2}\sqrt{21}$

☐ $\sqrt{21}$

☐ $\frac{1}{2}\sqrt{9}$

☐ $\frac{1}{2}\sqrt{13}$

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