

Problem 1. (10 pts) Let $A(3, 2, 1)$, $B(1, -1, 1)$, $C(-2, 5, 6)$.

$\vec{BA} \cdot \vec{BC}$ is equal to:

- A. 12
- B. -12
- C. 19
- D. -19
- E. None of the above

$$\vec{BA} = \langle 2, 3, 0 \rangle$$

$$\vec{BC} = \langle -3, 6, 5 \rangle$$

$$\vec{BA} \cdot \vec{BC} = -6 + 18 = 12$$

Problem 2. (10 pts) With A , B , C as above. $\vec{AC} \times \vec{AB}$ is equal to:

- A. $\langle 15, 10, 21 \rangle$
- B. $\langle 15, -10, 21 \rangle$
- C. $\langle -15, 10, -21 \rangle$
- D. $\langle -15, -10, -21 \rangle$
- E. None of the above

$$\vec{AC} = \langle -5, 3, 5 \rangle$$

$$\vec{AB} = \langle -2, -3, 0 \rangle$$

$$\vec{AC} \times \vec{AB} = \langle 15, -10, 21 \rangle$$