

Homework #21
Due Monday, November 30
No late homework accepted! No excuses!

1. Calculate the given quantity if $\vec{a} = \langle 1, 1, -2 \rangle$, $\vec{b} = \langle 3, -2, 1 \rangle$, $\vec{c} = \langle 0, 1, -5 \rangle$.
- a) $2\mathbf{a} + 3\mathbf{b}$
 - b) $\vec{a} \cdot \vec{b}$
 - c) $|\vec{b} \times \vec{c}|$
 - d) $\vec{c} \times \vec{c}$
 - e) $|\vec{b}|$
 - f) $\vec{a} \cdot (\vec{b} \times \vec{c})$
 - g) $\vec{a} \times (\vec{b} \times \vec{c})$
 - h) $\text{proj}_a \vec{b}$

2. Find two unit vectors that are orthogonal to both $\langle 0,1,2 \rangle$ and $\langle 1,-2,3 \rangle$.

3. For what values of b are the vectors $\langle -6,b,2 \rangle$ and $\langle b,b^2,b \rangle$ orthogonal?