Additional exercises: Chapter 2,
Linear Algebra and Probability for Computer Science Applications

If you are not familiar with vector or matrix operations, do these computations by hand and then check your answer in MATLAB. This may seem like busy work, but there is really no other way to get a feel for what these mathematical operations do.

1. $\langle 1, -1, 3\rangle + \langle 2, 2, -1\rangle$

2. $3 \cdot \langle 2, 1, 4, 0\rangle$

3. $\langle 4, 1\rangle \bullet \langle 2, 3\rangle$

4. $\langle 3, -1, 2\rangle \bullet \langle 1, 2, 3\rangle$.

5. $[\langle 3, -1, 2\rangle \bullet \langle 1, 2, 3\rangle] \cdot \langle 1, 2, 3\rangle$.

6. $|\langle 3, 6, 2\rangle|$

7. Find the cosine of the angle between $\langle 4, -4, 2\rangle$ and $\langle 2, -3, 6\rangle$. Using MATLAB find the actual angle.

8. Find the cosine of the angle between $\langle 4, -4, 2\rangle$ and $\langle 2, 3, 6\rangle$. Using MATLAB find the actual angle.