Review Problems

January 13, 2017

1. (Fall 2004, Exam 1, #2) Find a vector perpendicular to $\mathbf{i} + \mathbf{j}$ and $\mathbf{j} - \mathbf{k}$.
2. (Fall 2006, Exam 1, #3) Find the area of the triangle with vertices $(-1, 1, 1), (2, 0, 2)$ and $(3, 2, 2)$.
3. (Fall 2007, Exam 1, #2) Which of the following are true?

   I. The dot product of two vectors is a real number

   II. The cross product of two vectors is a real number

   III. If $\vec{A}$ and $\vec{B}$ are orthogonal, then $\vec{A} \cdot \vec{B} = 0$.
4. (Fall 2007, Exam 1, #3) Find the volume of a parallelepiped if it has one vertex at the origin, and the neighboring vertices at $A(1, 0, 2)$, $B(2, 1, 1)$, and $C(1, 1, 1)$.
5. (Fall 2007, Exam 1, #4) Find the area of the planar triangle with vertices (1,1), (3,2) and (1,-1).
6. (Fall 2008, Exam 1, #6) Find the $\vec{j}$-component of $(2\vec{i} + \vec{j}) \times (\vec{i} + \vec{j} - \vec{k})$.