MAT 175 HOMEWORK #3

DUE OCTOBER 5 (WEDNESDAY)

Note: *Please indicate you are in* **Section C01**. *Numbering of problems is as in the textbook.*

(11.3.**8**) Let $\vec{a} = \langle \sqrt{3}/3, \sqrt{3}/3, \sqrt{3}/3 \rangle$, $\vec{b} = \langle 1, -1, 0 \rangle$, and $\vec{c} = \langle -2, -2, 1 \rangle$. Find the angle between each pair of vectors.

(11.3.**20**) For what numbers c are the vectors $\vec{u} = 2c\vec{i} - 8\vec{j}$ and $\vec{v} = 3\vec{i} + c\vec{j}$ orthogonal?

(11.3.**30**) Let $\vec{u} = 3\vec{i} + 2\vec{j} + \vec{k}$ and $\vec{v} = 2\vec{i} - \vec{k}$. Find $\text{proj}_{\vec{u}}\vec{v}$.

(11.3.**44**) Which of the following do not make sense?

(a) $\vec{u} \cdot (\vec{v} + \vec{w})$
(b) $(\vec{u} \cdot \vec{w})\|\vec{w}\|$
(c) $\|\vec{u}\| \cdot (\vec{v} + \vec{w})$
(d) $(\vec{u} + \vec{v})\vec{w}$

(11.3.**70**) Find the equation of the plane through $(-1, 2, -3)$ and parallel to the plane $2x + 4y - z = 6$.