MATH 3335
HOMEWORK # 1, DUE MONDAY JANUARY 30

PROFESSOR WAGNER

Do p. 8 # 14. Do p. 23 # 7, 8, 9.

In addition:

(1) Suppose $\mathbf{x} = x_1\mathbf{i} + x_2\mathbf{j} + x_3\mathbf{k}$, $\|\mathbf{x}\| = 5$, $x_3 \geq 0$ and $\mathbf{x}$ has direction cosines $\cos\alpha = \frac{1}{2} = \cos\beta$. Find $\mathbf{x}$.

(2) Consider the two lines:

$$r = -2\mathbf{i} + 3\mathbf{j} + 7\mathbf{k} + t\,(3\mathbf{i} + 2\mathbf{j} - \mathbf{k})$$
$$R = -\mathbf{i} + 5\mathbf{j} + 8\mathbf{k} + s\,(-2\mathbf{i} + 2\mathbf{k})\,.$$

    (a) Find the point(s) of intersection, if any.

    (b) Assume that the lines intersect and find the cosine of the angle of intersection, .