MATH 252 HW #1: CHAPTER 14
FALL 2008

Write your name and class and clearly separate sections! See the syllabus.
Show work where appropriate, and use "good form and procedure," as in class!
(The solutions manual may have insufficient work.)
This is due when you take Quiz 1 on Chapter 14.
Graded out of 10 points.
"*" denotes "See Hint below."
Read some of the Examples in this chapter for additional assistance.

(My notes are also fair game for tests.)
Mark vectors as in class; don't use "boldface" for vectors.
Section 14.5 may be well represented on Quiz #1.

14.1: 1, 3, 5, 7, 13, 15, 17, 19, 27, 29, 31, 35, 39*, 41, 43*, 45, 47, 49, 53, 55, 56

   Note on 39: Read Example 7 on p.692.

   Note on 43: You will do this in Linear Algebra (Math 254). You are trying
   to express <-6, -11> as a linear combination of <3, -1> and <4, 3>.

14.2: 1, 7, 15-27 odd, 28*, 29, 31, 33, 35, 36, 37, 39-42

   Answer to 28: $(x-2)^2 + (y-3)^2 + (z+1)^2 = 81$

14.3: 1, 3, 5, 7, 11, 15-25 odd, 29, 35, 39, 40, 42, 44, 46, 47, 50, 52

   Additional Problem: Find the angle between an edge and a "long" diagonal
   of a cube. Answer: About 54.7 degrees.

   Look at (i.e., you don't have to do, but it's interesting or useful):
   43

CONTINUED ON THE BACK!

14.4: 1, 5, 11, 15*, 19, 23, 25, 26*, 32, 33

Additional Problem: Which of the following are vectors, which are scalars, and which make no sense? Assume that **a**, **b**, and **c** are in V_3.

(a) $(\mathbf{a}\times\mathbf{b})\times\mathbf{c}$

(b) $(\mathbf{a}\times\mathbf{b})\bullet\mathbf{c}$

(c) $(\mathbf{a}\bullet\mathbf{b})\times\mathbf{c}$

(d) $(\mathbf{a}\bullet\mathbf{b})\bullet\mathbf{c}$

Note on 15: The solutions manual has sign errors.
Hint on 26: $\mathbf{a}\times\mathbf{b}=\mathbf{a}\times\mathbf{c} \Leftrightarrow (\mathbf{a}\times\mathbf{b})-(\mathbf{a}\times\mathbf{c})=\mathbf{0}.$
Look at 24, 27.

14.5: 1-13 odd, 15*, 19, 21, 23, 27, 41, 43, 45, 47, 51-65 odd (see Note on 59*)

Note on 15: The back of the book is wrong. $\theta \approx 75°$, not $55°$.

Typo on p.722: "$b=b_1$, $c=c_1$" should read "$b=a_2$, $c=a_3$."

Section 14.5 may be well represented on Quiz #1.

14.6: 1, 3, 5, 7, 9-20 all, 33-45 odd (don't sketch; just identify), 51, 53, 55

Typo on bottom of p.735: "Thus the graph of (14.41) lies between the planes [it should be:] $z=-c$ and $z=c$."

14.7 (Review): 23, 33