To M28 students -
Comments/study guide for current text sections.

Sec 1.5 We are omitting the material on "distance problems" - lots of fun, nice applications of dot and cross product, making this optional because of time. [there's so much good math and so little time.....]

Sec. 1.6 You already have reviewed the basics of matrix multiplication and finding determinants. That's all (I think) that is required from this section.

Sec. 1.7. Browse. Probably you have studied polar coordinates before (I did in high school, and am assuming you did in HS or Calc I-II). I'll assume you are familiar with the basic ideas in polar coordinates, and will mention/use/remind later in the context of the chain-rule (Sec. 2.5) and change-of-variables-in-integrals (Sec. 5.5).

Cylindrical coordinates is just polar coordinates with a "z" added. We can specify a point in the xy-plane by its coordinates (x,y) or by radius r and angle theta, <r, theta>. (I'll use <> brackets just to remind us the two numbers are not the xy-coordinates). Likewise, we can specify a point in R^3 by its coordinates (x,y,z), or by the point in the plane <r,theta> and a height z, i.e. <r,theta,z>. More later...

Section 2.1:
Functions of several variables; Graphing surfaces.

Just browse p.84 - mid p.87; you've seen this earlier in life; should know the ideas; I won't fuss about the terminology. The distinction between "range" and "co-domain" is nice to have, but rarely (if ever) will matter to us. Most math prof's don't walk around saying "co-domain"; we just are sloppy about what "range" means.

Start studying from Example 4 p.86 and onward.
Don't sweat about the pedagogical distinctions on p88; just be comfortable with various ways to specify the same function.

Emphasize *visualizing* functions, p.88 bottom --> p.94.

Re the "library" of surfaces, p. 95-97: Be aware of the various shapes, and develop tools (in particular looking at horizontal and vertical slices of a surface) to help get a sense of the overall shape of a surface given by an equation. A typical exam question for this might be a page with a lot of equations and several pictures, where you are asked to match each picture to an equation.

end of handout 02/02/05