HOMEWORK 11: STRONGLY RECOMMENDED PROBLEMS FOR STUDYING FOR THE FINAL (That weren't already assigned) – YOU SHOULD ALSO KNOW YOUR HOMEWORK

Below is a list of strongly recommended problems for the final. They're strongly recommended. You should probably take a look at them. I strongly recommend that you do.

11.3: Polar Coordinates

You weren't signed this section, but the professor wants you to know it.

Problems: 7, 29, 49, 51 (Should probably know the formulas given in problem 49)

Extra: Find the area enclosed by the curve in number 29, using double integrals (Rememer that the area element $dA = rdrd\theta$ in polar coordinates)

You want to know how to graph things in polar coordinates (I just go with understanding how to plot points and then plotting all the easy ones). You want to know the formula in problem 49, and how to apply it. Problem 51 applies it. You want to know how to describe doains in terms of r and θ. How would these domains change if they weren't so simple?

12.5: Planes

Problems: 57,59,60

The idea of finding an equation of a line should not be new to you, but the idea of finding the line of intersection between two planes sorta is. Please note that the equation of a line is given as a vector parametrization. Remember from midterm 1, POINT + DIRECTION.

14.8: Lagrange Optimization

Problems: 41 (This one is on the practice final, but you might want to read up on the Lagrane Optimization with multiple constraints)

I know the professor went over a different method of shortest/longest distance that was much simpler than this, but if you don't realy get it, this should be an okay fall-back.

15.3: Triple Integrals

Problems: 11,21,25

You should know how to set up triple integrals and what the domains look like. Especially the second thing (you won't be asked to DESCRIBE a domain, but you will often need to

know what the domains actually are, and you may need to graph the domain). Setting up the integrals and the how-to behind it should be important. As for actually evaluating the integrals, I'd do that just to know your setup is right. You should know how to evaluate triple integrals though.

15.4: Cylindrical Coordinates

Problems: 27,29,31,33,35

Setup is important here. You want to know how to switch from euclidean to cylindrical, and how to change polar to cylindrical when a z variable is added.
REMEMBER THE DIFFERENCES IN THE VOLUME ELEMENT AND AREA ELEMENTS dV and dA from cylindrical and polar coordinates and the ones in Euxlidean coordinates (It's NOT just $drd\theta$ and $ddrd\theta$, BUT $rdrd\theta$ and $rdzdrd\theta$).

Final Notes

If I can think of any other helpful STRONGLY RECOMMENDED problems, I'll let you know.

Keep in mind that this final will be harder than any tests you've taken in this class, by definition (it's a final, yo). The problems above may represent roughly a fifth to a quarter of the final material.

If there's anything else I think I can include to help you, I will.