

DPGRAPH Assignment #1 - Math 260 – Towers

1. Open the file m260_problem1.dpg, which is available at my website <http://www.miracosta.edu/home/jtowers/>
2. Do a little experimentation:
 - a. Press the right, left, up, down arrows and see what happens
 - b. Select scrollbar from the menu, and try some of the options. Specifically, make sure you see how to adjust the transparency.
3. Select edit from the menu. You are looking at the dpgraph commands that produce the display.
4. Change the resolution (edit the line: graph3d.resolution := 30) from 30 to 40, and then to 20, and see what happens. Change it back to 30.
5. Change true to false in the line: GRAPH3D.BOX := true. See what happens, and then set it back to true.
6. The last line of the command file plots three spheres. The individual spheres are separated by commas. Replace one of the spheres by the sphere $x^2 + y^2 + z^2 - 4x + 6y + 2z = 11$.
7. Modify the bounding box parameters so that this sphere just fits (you may want to complete the square to find the center and radius of the sphere for this part). For this you are going to be modifying the 6 lines that look like this - graph3d.minimumx := -10, etc.
8. Replace the two other spheres (the original ones) by spheres that fit entirely inside the first one that you plotted. Make it so that those two spheres just touch each other, and just touch the first one you plotted. Set the transparency so that it is possible to see all three spheres.
9. Get a hard copy of your plot to turn in. To do this, select clipboard from the menu. Answer ok to the dialog box. Then open a word document (this also may work with other types of text editors), and paste your plot into the document. You will probably have to resize the figure. Include plots from two different angles. Resize them so that they both fit on one page. This is what you are going to hand in.

Notes:

1. See the website <http://dpgraph.com/implicit-equations.html> for documentation, including a list of the most common errors.
2. If you make a syntax error in the command file, dpgraph gives you a error in the lower left corner of the screen, but no indication of what the error might be. Click on the blue portion of the screen at the top of the window. This allows you to go back in and edit the command file. The most common error is omitting the '*' for multiplication. Check for this type of error first.
3. What you see when you originally open the dpgraph file m260_problem1.dpg should look something like this

