For all of the following, you should use the appropriate keyword, not the plot-builder. I also have not written a comment sheet for this lab — you should use the Maple help system to get help on the commands or the options for the commands.

1. Given a function of two variables
$$f(x, y) = 4x^2 - 3y^2$$
   (a) Use the *plot3d* keyword to create a surface plot with boxed axes.
   (b) Use the *contourplot* keyword from the Plots package to create a contour plot. Note that you will have to load the Plots package first.
   (c) Create a function to transform two-dimensional graphs into three-dimensional graphs by loading the Plot Tools package and then typing in:
$$g := \text{transform}\,((x, y) \to [x, y, zmin]) :$$
   where *zmin* is the minimum z-value that you saw in the plot from part (a). Note: The colon at the end of the command just suppresses the output.
   (d) In the same coordinate space, display both the surface plot and contour plot for this function. To do this, you will want to give a name to the commands that you used in parts (a) and (b), and then use the command:
$$\text{display}(\text{namea}, g(\text{nameb}))$$

2. Given the function of two variables
$$f(x, y) = y\sin(x) + x\cos(y) \text{ for } x \in [-8, 8] \text{ and } y \in [-8, 8]$$
   (a) Create a surface plot using a 50×50 grid for plotting the points.
   (b) Create a contour plot.
   (c) In the same coordinate space, create both a surface plot and a contour plot.
   Note: Since the value of *zmin* is different, you will want to define a new function *g2* to use for this problem.

3. Given the function of one variable
$$f(x) = \left|\sin(x)\right|$$
   (a) Create two coordinate plane graphs, one with $x \in [0, 2\pi]$ and one with $x \in [\pi, 3\pi]$.
   (b) Create a surface plot where the graph with domain $[0, 2\pi]$ is rotated around the x-axis. Use normal axes.
   (c) Create a surface plot where the graph with domain $[\pi, 3\pi]$ is rotated around the y-axis. Use normal axes.