IDL Week 1 Exercises

1. Using array commands where possible, create the following arrays:
    1. Height from 0 to 20 km at 0.5 km intervals
    2. Temperature, based on a surface temperature of 300K and a 6.5K/km lapse rate
    3. Pressure, based on (1), (2), and the hydrostatic equation (assume a dry atmosphere)
2. Use matrix multiplication to solve the following equation (verify the result):

$$\begin{bmatrix} 5 & 2 & 0 & 5 \\ 7 & 9 & 3 & 9 \\ 5 & 0 & 3 & 8 \\ 8 & 4 & 7 & 1 \end{bmatrix} x = \begin{bmatrix} 4 \\ 0 \\ 2 \\ 1 \end{bmatrix}$$

3. The main IDL directory is stored in the **!DIR** system variable. This directory contains a subdirectory *lib/* where where the IDL looks for procedures after searching the working directory. Find the minimum, maximum, mean, median, and skewness of file size in the *lib/* directory.