For each of the following, assume a student produces an experimental graph of the quantities indicated. Tell me:

a. Is the graph straight or curved?
b. If the graph is curved, what quantities could be graphed to make a straight line?
c. What will be the slope of the straight graph?

1. Current through a resistor as a function of voltage

2. Wavelength of waves in a musical instrument as a function of the frequency of the note produced

3. Pressure in a water column as a function of height

4. Magnetic field generated by a current-carrying wire as a function of distance from a wire

5. Pressure of a gas in a closed syringe as a function of volume.

6. Distance between sound intensity maxima as a function of the frequency of the sound emanating in phase from two speakers.

7. Maximum speed of a mass on a spring as a function of the mass's maximum displacement from equilibrium