1. A public opinion poll found that from a sample of 450 voters, 252 favored a school bond measure. If 20,000 people vote, about how many are likely to vote for the bond measure?

2. The stretch in a loaded spring varies directly as the load it supports. A load of 15 lbs stretches a certain spring to 3.6 inches. What load would stretch the spring 6 inches?

3. The speed of an object falling from rest in a vacuum is directly proportional to the time it has fallen. After an object has fallen for 1.5 seconds, its sped is 14.7 m/sec. What is its speed after it has fallen 5 seconds?

4. The centrifugal force acting on an object moving in a circle is directly proportional to the square of the speed of the object. If the force is 2240 newtons when the object is moving at 8 m/sec, what is the force when the object is moving at 12 m/sec?

5. The power developed by an electric current varies directly as the square of the magnitude of the current. If a current of 0.5 amps develops 100 watts of power, what current will develop 1.6 kilowatts of power?

6. The frequency of a radio signal varies inversely as the wave length. A signal of frequency 1200 kilohertz (kHz), which might be the frequency of an AM radio station, has a wave length of 250 meters. What frequency has a signal of wave length 400 meters?

7. The heat loss through a class window varies jointly as the area of the window and the difference between the inside and outside temperatures. If the loss through a window with area 3 m^2 is 720 BTU when the temperature difference is 15° C, what is the heat loss through a window with area 4.5 m^2 when the temperature difference is 12° C?

8. The intensity of light, measured in lux, is inversely proportional to the square of the distance between the light source and the object illuminated. A light meter (a gauge to measure light intensity) is placed 7.5 m from a light source and registers 24 lux. What intensity would it register 15 m from the light source?

9. The stretch in a wire under a given tension varies directly as the length of the wire and inversely as the square of its diameter. A wire having length 2 m and diameter 1.5 mm stretches 1.2 mm. If a second wire of the same material (and under the same tension) has length 3 m and diameter 2.0 mm, find the amount of the stretch.