Waves Quiz

1. A pendulum is swinging in a rocket ship as it takes off from Earth. As the rocket leaves the surface of the Earth, what happens to the period of the pendulum?
2. A pendulum has a length of 10m. What is the period of the pendulum?
3. A pendulum has a length of 2m. What is the linear frequency of the pendulum?
4. A wave has a wavelength of 15m. If its velocity is 20 m/s, what is the frequency?
5. A wave's behavior is governed by the following equation, $y=5\sin(8x - 6t)$
    a. What is the wavelength?
    b. What is the frequency?
    c. What is the period?
    d. What is the amplitude?
    e. Is this a transverse or longitudinal wave?
    f. What direction is the wave traveling?
    g. What is the speed of the wave?
6. The speed of light is approximately $3x10^8$ m/s. If a light wave travels a distance of 20cm in 10 cycles, what is the frequency of the wave.
7. A leaf is resting on the surface of a pond when a wave travels through the water. The leaf bobs up, down, and back up in 25s. What is the frequency of the wave?
8. Violet light has a frequency of 700 THz (tera = 10^{12}), what is its wavelength?
9. A violin string has a length of 5 m. The speed of sound is 340 m/s. Find the first five harmonic frequencies and wavelengths.