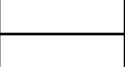
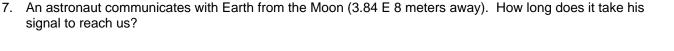
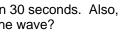
- 1. My favorite FM radio station in Austin is KASE100.7 MHz and my favorite AM station is KVET 1300 kHz. Radio waves are a form of electromagnetic radiation and, just like light, travel at 3.0 E 8 m / s. What are the wavelengths of my favorite radio stations?
- 2. A cork bobber resting on the surface of a pond bobs up and down two times per second on some ripples having a wavelength of 8.5 cm. If the cork is 10.0 m from shore, how long does it take a ripple passing the cork to reach the shore?
- 3. When a particular wave is vibrating with a frequency of 4 Hz, a transverse wave of length 60 cm is produced. Determine the speed of the wave pulses along the wire.
- 4. A wave is traveling along a rope. It is observed that the wave completes 40 vibrations in 30 seconds. Also, a given crest travels 425 cm along the rope in 10 seconds. What is the wavelength of the wave?
- 5. For a certain transverse wave, it is observed that the distance between two successive crests is 1.2 meters. It is also noted that eight crests pass a given point along the direction of travel every 12 seconds. What is the speed of the wave?
- 6. How long does it take light from the sun to reach us (in minutes)? (The sun is 93 million miles away; 1600 meters = 1 mile) SHOW ALL CALCULATIONS!!!

8. How long does it take **light** from Proxima Centauri (the star nearest our sun) to reach Earth which is 4 E 16











HW 6.2 Waves and Sound

signal to reach us?

meters away?

 1.	Through which of the following does sound travel fastest?a. waterb. heliumc. alcohold. iron
 2.	<ul> <li>Resonance occurs when you</li> <li>a. push an object</li> <li>b. hit an object with a hammer</li> <li>c. cause an object to vibrate at its natural frequency</li> <li>d. vibrate an object</li> </ul>
 3.	The normal range of hearing for a human is         a. 20-2,000 Hz       b. 20-40,000 Hz       c. 10-10,000 Hz       d. 20-20,000 Hz
 4.	<ul> <li>Beats are formed by interference of two waves</li> <li>a. both constructive and destructive</li> <li>b. beats are vegetables and have nothing to do with sound.</li> <li>c. constructive</li> <li>d. destructive</li> </ul>
 5.	In a very famous Memorex commercial, Ella Fitzgerald makes a wine glass shatter with her voice. This is a demonstration of a. interference b. beats c. sound refraction d. resonance
 6.	A tuning fork of frequency 200 Hz will resonate if a sound wave incident on it has a frequency ofa. 300 Hzb. 400 Hzc. 200 Hzd. 100 Hz
 _	If you hear the pitch of a siren become lower, you know that
7.	<ul><li>a. the siren is getting farther from you</li><li>b. neither you nor the siren is moving.</li><li>c. you are moving toward the siren</li></ul>
<ol> <li>7.</li> <li>8.</li> </ol>	<ul> <li>a. the siren is getting farther from you</li> <li>b. neither you nor the siren is moving.</li> <li>c. you are moving toward the siren</li> <li>d. the siren is getting closer to you</li> </ul>
	<ul><li>a. the siren is getting farther from you</li><li>b. neither you nor the siren is moving.</li><li>c. you are moving toward the siren</li></ul>
	<ul> <li>a. the siren is getting farther from you</li> <li>b. neither you nor the siren is moving.</li> <li>c. you are moving toward the siren</li> <li>d. the siren is getting closer to you</li> <li>The speed of a sound wave in air depends on</li> <li>a. its frequency</li> <li>b. its amplitude</li> <li>c. its wavelength</li> <li>b. its amplitude</li> <li>c. its experimentation of the siren</li> <li>d. the air temperature</li> </ul> Five seconds after a gun is fired, the person who fired hears an echo. How far away was the surface that reflected the sound? (v = 340 m/s)
 8. 9.	<ul> <li>a. the siren is getting farther from you</li> <li>b. neither you nor the siren is moving.</li> <li>c. you are moving toward the siren</li> <li>d. the siren is getting closer to you</li> <li>The speed of a sound wave in air depends on</li> <li>a. its frequency</li> <li>b. its amplitude</li> <li>c. its wavelength</li> <li>b. its amplitude</li> <li>d. the air temperature</li> <li>Five seconds after a gun is fired, the person who fired hears an echo. How far away was the surface that reflected the sound? (v = 340 m/s)</li> <li>a. 1700 m</li> <li>b. 850 m</li> <li>c. 34 m</li> <li>d. 68 m</li> </ul>
 8.	<ul> <li>a. the siren is getting farther from you</li> <li>b. neither you nor the siren is moving.</li> <li>c. you are moving toward the siren</li> <li>d. the siren is getting closer to you</li> <li>The speed of a sound wave in air depends on</li> <li>a. its frequency</li> <li>b. its amplitude</li> <li>c. its wavelength</li> <li>b. its amplitude</li> <li>c. its even who fired hears an echo. How far away was the surface that reflected the sound? (v = 340 m/s)</li> <li>a. 1700 m</li> <li>b. 850 m</li> <li>c. 34 m</li> <li>d. 68 m</li> <li>Two whistles produce sounds of wavelengths 3.4 m and 3.3 m. What is the beat frequency produced? (speed</li> </ul>
 8. 9.	<ul> <li>a. the siren is getting farther from you</li> <li>b. neither you nor the siren is moving.</li> <li>c. you are moving toward the siren</li> <li>d. the siren is getting closer to you</li> <li>The speed of a sound wave in air depends on</li> <li>a. its frequency</li> <li>b. its amplitude</li> <li>c. its wavelength</li> <li>b. its amplitude</li> <li>d. the air temperature</li> <li>Five seconds after a gun is fired, the person who fired hears an echo. How far away was the surface that reflected the sound? (v = 340 m/s)</li> <li>a. 1700 m</li> <li>b. 850 m</li> <li>c. 34 m</li> <li>d. 68 m</li> </ul>

- 12. What is meant by natural frequency?
- 13. Describe resonance