

## **ELECTROMAGNETIC SPECTRUM PRACTICE QUESTIONS**

Answer the following questions on a **separate sheet of paper** to turn in. Restate the questions in your answers and show all your math.

1. Why are infrared rays useful in search-and-rescue operations?
2. How are ultraviolet rays harmful? How can they be helpful?
3. X-rays can take pictures of your bones, but visible light cannot. Explain why.
4. Visible light is a small part of the electromagnetic spectrum and is responsible for the colors you see. What color would a blue wall appear under green light? Why?
5. How are AM waves similar to FM radio waves? How are they different?
6. Calculate the wavelength of an AM radio wave in a vacuum if its frequency is 810,000 Hz. Think about it – you know the speed of light (check your notes!) – all frequencies in the electromagnetic spectrum travel at the speed of light.
7. The radio waves of a particular AM radio station vibrate 680,000 times per second. What is the wavelength of the wave? Hint: first you must figure out what the frequency is.
8. A global positioning satellite (GPS) transmits a radio wave with a wavelength of 0.19 meters. What is the frequency of the radio wave?