

Name: \_\_\_\_\_

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## **Chapter 21.1 Homework**

### **Conceptual Physics**

Parent Signature: \_\_\_\_\_

*Each numbered question is worth one point unless otherwise noted.*

#### **Reviewing Concepts**

1. In terms of energy used and light and heat produced, how does an incandescent bulb compare to a fluorescent bulb?

2. Why do we see lightning before we hear thunder?

3. Which of the following is not a quality of light?

- a. high speed
- b. acceleration
- c. color
- d. intensity

4. Describe the role of atoms in producing light in a fluorescent light bulb.

5. In terms of the absorption and reflection of light, describe the difference between a black piece of cloth and a white piece of cloth.

#### **Solving Problems**

1. Rewrite the italicized portions of the following false statements so that they are true.

- a. Light intensity is measured in units of *power per volume of space*. (0.5)
  
- b. If the intensity of light at 1 m from a source is  $1 \text{ W/m}^2$ , *it will be  $2 \text{ W/m}^2$  at 2 m from the source*. (1)

c. At 1 m from a light source, a  $1 \text{ m}^2$  area has a light intensity of  $0.8 \text{ W/m}^2$ . At 3 m from a light source, a  $1 \text{ m}^2$  area will have a light intensity of  $0.4 \text{ W/m}^2$ . (1)

2. You are reading a book by the light of a lamp. Compare the intensity of the light on your book at 1 m away from the lamp to the intensity of the light on your book at 2 m away from the lamp.

3. If 4 s pass between seeing a lightning strike and hearing thunder, about how far away was the lightning?

4. Arrange the following in order of speed from fastest to slowest: sound waves, light waves, water waves. (0.5)