

1. A lens for a spotlight is coated so that it does not transmit cyan light. If the light source is white what color is the spotlight?

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2. A house is painted with pigments that reflect red and green light but absorb all other colors. What color does the house appear to be when it is illuminated by white light? What color does it appear to be under green light?

3. The light reflected from the surface of a pool of water is observed through a polarizer. How can you tell if the reflected light is polarized?

4. Explain what could happen when you mix the following:

a. Magenta and yellow pigment _____

b. Blue and yellow light _____

5. What color would an opaque cyan shirt appear to be under the following colors of light?

a. White _____

b. Red _____

c. Magenta _____

d. Green _____

e. Yellow _____

6. A substance is known to reflect green and blue light. What color would it appear to be when it is illuminated by white light? By blue light?

7. Why would sunglasses with polarizing lenses remove the glare from your view of the hood of your car or a distant body of water, but not from a tall metal tank used for storing liquids?

8. Is light from the sky polarized?

- ___ 1. When red and green light mix, the resulting color of light is
a. magenta b. yellow c. blue d. cyan
- ___ 2. A sheet of red paper will look black when illuminated with
a. magenta light b. yellow light c. red light d. blue light
- ___ 3. If sunlight were green instead of white, the most comfortable color to wear on a hot day would be
a. blue b. green c. red d. magenta
- ___ 4. When cyan and yellow paints are mixed together, the result is green. The reason for this is that
a. cyan reflects only blue light and yellow absorbs blue light
b. cyan and yellow are complimentary colors
c. yellow pigment absorbs green light and reflects all others
d. between cyan and yellow pigments, all colors are absorbed except green
- ___ 5. A photographer wishes to use a safety light in the darkroom that will emit low energy photons. The best color of this light is
a. violet b. green c. red d. blue
- ___ 6. Magenta light is really a mixture of
a. red and cyan light c. yellow and green light
b. red and blue light d. red and yellow light
- ___ 7. Colors seen on a photograph result from color
a. subtraction b. addition c. neither of these
- ___ 8. To reduce glare when I fish, I must wear sunglasses made of
a. filters which allow the collimated light to be scattered only periodically
b. vertical polarizing filters
c. both horizontal and vertical polarizing filters
d. horizontal polarizing filters
- ___ 9. What is the wavelength of an infrared wave with a frequency of 4.2×10^{14} Hz?
a. 7.1×10^5 m b. 1.4×10^6 m c. 7.1×10^{-7} m d. 1.4×10^{-6} m
- ___ 10. Yellow-green light has a wavelength of 5.60×10^{-7} meters. What is its frequency?
a. 5.4×10^6 Hz b. 1.8×10^6 Hz c. 1.8×10^{14} Hz d. 5.4×10^{14} Hz
- ___ 11. When red light is compared with violet light
a. both have the same frequency
b. both have the same wavelength
c. both travel the same speed
d. red light travels faster than violet light
- ___ 12. The farther light is from a source
a. the more spread out light becomes
b. the more condensed light becomes
c. the more bright light becomes
d. the more light is available per unit area