

PracTest Light

ID#

$c = 3.0 \times 10^8 \text{ m/s}$

Indices of refraction: Air 1.00, Water 1.33, Glass 1.50, Diamond 2.42

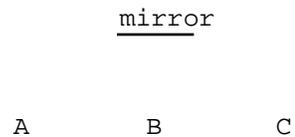
FOCUS, DO YOUR BEST, BUT DO NOT MARK THE TEST!

- Which of the following does not refer to a type of electromagnetic wave?
 - A. radio
 - B. sonar
 - C. ultraviolet
 - D. X-ray
 - E. microwave
 - F. gamma
- The wavelength of red light is ? that of blue light; the frequency of red light is ? that of blue light.
 - A. longer than; higher than
 - B. shorter than; lower than
 - C. longer than; lower than
 - D. longer than; the same as
 - E. the same as; higher than
 - F. none of these

Consider radio waves (R), ultraviolet light (UV), infrared light (IR), and gamma rays (γ)

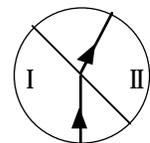
- From lowest to highest frequency, these would be ordered
 - A. R-IR-UV- γ
 - B. IR-R-UV- γ
 - C. γ -IR-UV-R
 - D. UV-IR- γ -R
 - E. IR- γ -R-UV
 - F. γ -UV-IR-R
 - G. R-UV- γ -IR
 - H. UV-R-IR- γ
 - J. all have equal frequencies
- Which station broadcasts with 2.94m radio waves?
 - A. KXPR 91.7MHz
 - B. Y 92.5MHz
 - C. WGRD 98.5MHz
 - D. KSFM 102MHz
 - E. KWOD 106MHz
 - F. WLAV 108MHz
- KFBK AM broadcasts at 1530kHz. What is the corresponding wavelength of their carrier? (Most nearly)
 - A. 1 μ m
 - B. 1mm
 - C. 1m
 - D. 1km
 - E. 1Mm
 - F. 1Gm
- Diffuse reflection occurs whenever light is incident on
 - A. a smooth surface
 - B. a rough surface
 - C. any boundary between low n and high n materials
 - D. any boundary between high n and low n materials
 - E. a boundary between any two transparent substances, regardless of n

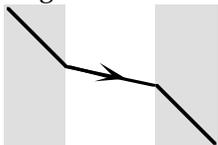
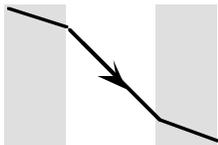
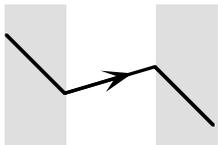
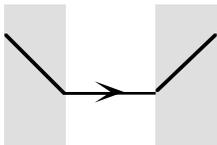
- Consider the three objects and mirror shown in the diagram to the right. An observer at position B can see position/s ? **in the mirror.**
 - A. A only
 - B. B only
 - C. C only
 - D. A and C only
 - E. A, B, and C
 - F. None



- A beam of light travels through air. It then enters a body of water. Upon entering the water
 - A. its wavelength increases
 - B. its wavelength decreases
 - C. its wavelength remains constant

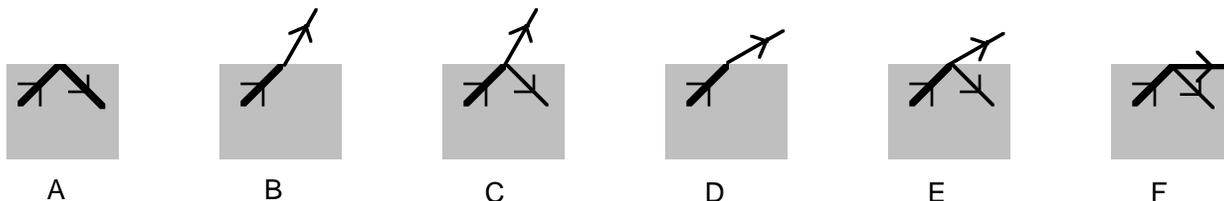
- A beam of light passes from medium 1 to medium 2 as shown in the diagram to the right. The index of refraction of medium 2 is ? the index of refraction of medium 1.
 - A. less than
 - B. equal to
 - C. greater than
 - D. not enough information



- Which of the diagrams correctly shows the path taken by a beam of light passing from glass to air to glass again?
 - A. 
 - B. 
 - C. 
 - D. 

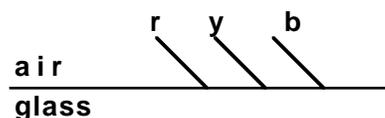
11. Choose the best answer. Mirages are the result of
- | | | | |
|---------------|-----------------|-----------------|------------------------------|
| A. reflection | B. refraction | C. scattering | D. diffraction |
| E. dispersion | F. polarization | G. interference | H. total internal reflection |

Use the diagrams below to answer the following questions. Each selection may be used once, more than once, or not at all.



12. A beam of light is directed from crystal X to air at an angle of incidence of 45° . The critical angle for crystal X is 45° . Which diagram above most accurately depicts the result?

13. Three parallel beams of light--one red, one yellow, and one blue--are incident at an oblique angle to glass as shown. Upon entering the glass



- I. The red beam bends toward the normal
 II. The yellow beam does not bend
 III. The blue beam bends away from the normal

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|------------------|-------------------|-------------------|
| A. I only | B. II only | C. III only |
| D. I and II only | E. I and III only | F. I, II, and III |

14. Choose the best answer. The phenomenon depicted on Pink Floyd's **Dark Side of the Moon** album cover (light passing through a prism) is referred to as

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|---------------|-----------------|-----------------|------------------------------|
| A. reflection | B. refraction | C. scattering | D. diffraction |
| E. dispersion | F. polarization | G. interference | H. total internal reflection |