

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

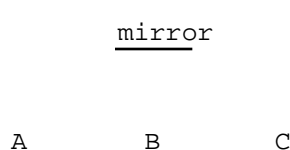
FOCUS, DO YOUR BEST, BUT DO NOT MARK THE TEST!

- 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)

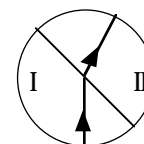
- From lowest to highest frequency, these would be ordered
 A. R-IR-UV- γ B. IR-R-UV- γ C. γ -IR-UV-R D. UV-IR- γ -R
 E. IR- γ -R-UV F. γ -UV-IR-R G. R-UV- γ -IR H. UV-R-IR- γ
 J. all have equal frequencies
- Which station broadcasts with 2.94m radio waves?
 A. KXPR 91.7MHz B. Y 92.5MHz C. WGRD 98.5MHz
 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

mirror


- 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

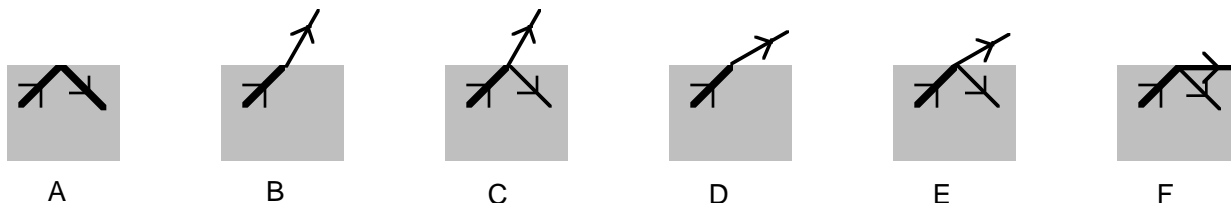


- Which of the diagrams correctly shows the path taken by a beam of light passing from glass to air to glass again?



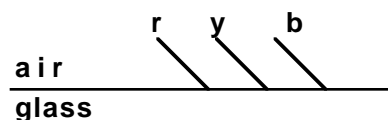
11. Choose the best answer. Mirages are the result of
- | | | | |
|---------------|-----------------|-----------------|------------------------------|
| A. reflection | B. refraction | C. scattering | D. diffraction |
| E. dispersion | F. polarization | G. interference | H. total internal reflection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

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

- | |
|-------------------|
| C. 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

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