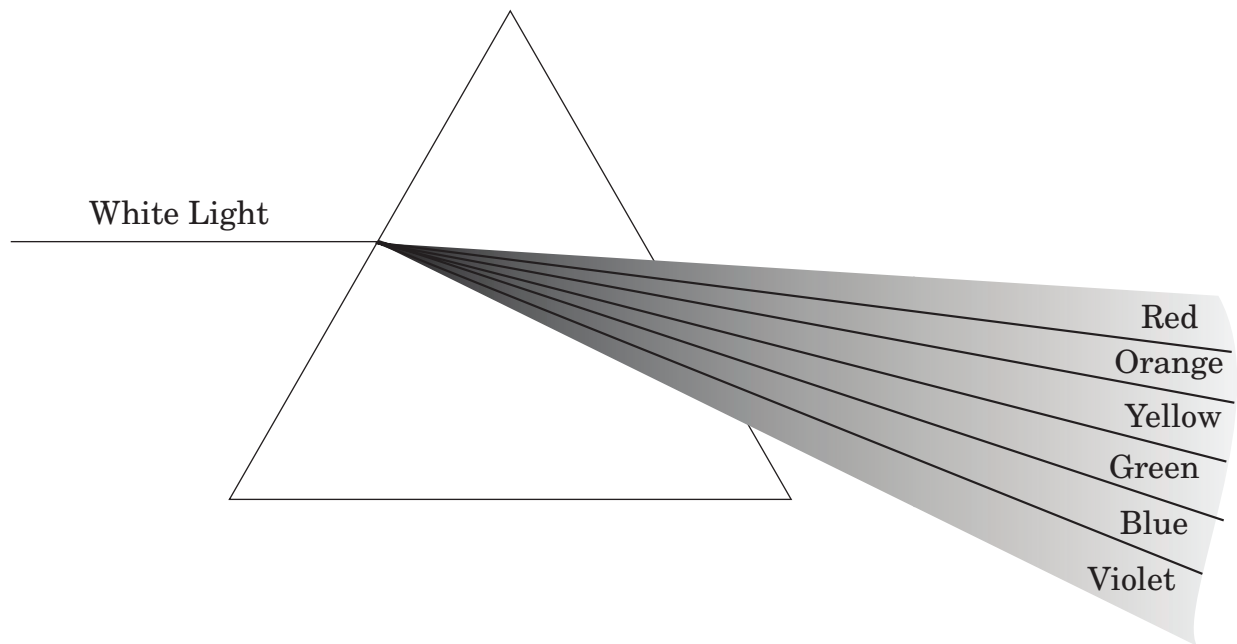


1. What is the velocity of a wave with a period of $\frac{1}{400}$ s and a wavelength of 0.870 m?
- A 87.0 m/s
B 300. m/s
C 348 m/s
D 400. m/s
2. Doubling the wavelength of sound traveling through air has what effect on the frequency?
- A The frequency is lower.
B The frequency is higher.
C The frequency is the same.
D The frequency is lower or higher.
3. If a tuning fork vibrates at 336 Hz, what is the **approximate** wavelength of the sound it produces in air at STP?
- A 0.1 m
B 1 m
C 4 m
D 10 m
4. An increase in the frequency of a sound wave will result in which of the following?
- A an increase in period
B a decrease in wavelength
C an increase in wave speed
D a decrease in amplitude
5. What is the frequency of a sound wave in air (at STP) whose wavelength is 0.92 m?
- A 360 Hz
B 280 Hz
C 1.1 Hz
D 0.0030 Hz
6. What characteristic do red, yellow, and violet light have in common?
- A wavelength
B frequency
C velocity
D energy

7. A 440.-Hz sound wave passes from air where its velocity is 343 m/s to water where its velocity is 1,430 m/s. What is the change in wavelength?
- A 0.780 m
 - B 2.47 m
 - C 3.26 m
 - D 4.04 m
8. Sound waves travel the *fastest* through which material?
- A copper
 - B air
 - C water
 - D rubber

9. When white light passes through a prism, it breaks up into its component colors as represented in the diagram below.

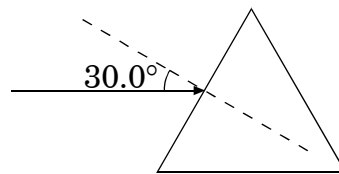


Which statement **best** explains this phenomenon?

- A The component colors have different speeds in the prism.
- B The component colors have different angles of incidence.
- C The component colors have different amplitudes in the prism.
- D The frequency of each component color in the prism is different from its frequency in air.
-
10. A student is standing 0.5 m from a plane mirror. The resulting image is **best** described by which of the following?
- A upright, real image, same size
- B upright, virtual image, reduced size
- C upright, real image, reduced size
- D upright, virtual image, same size

11. When an object is placed 10. cm away from a concave mirror of focus 5.0 cm, at what distance will the image be formed?
- A 5.0 cm
B 10. cm
C 15 cm
D 20. cm
12. Light travels through air and enters fused quartz. The refracted angle is 36.2° . What is the angle of incidence?
- A 59.6°
B 51.4°
C 25.5°
D 23.9°
13. An object is placed 40.0 cm in front of a converging lens with a focal length of 8.00 cm. What kind of image will be formed, and where will it be located?
- A real; 10.0 cm behind the lens
B real; 10.0 cm in front of the lens
C virtual; 10.0 cm behind the lens
D virtual; 10.0 cm in front of the lens

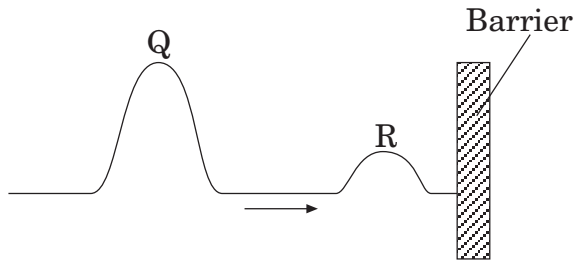
14. A beam of red light enters a crown glass prism on the path shown.



What is the angle of refraction?

- A 15.4°
B 19.2°
C 30.0°
D 48.6°
15. An object is located 8 cm from a converging lens with a focal length of 5 cm. Which of the following **best** describes the image formed?
- A It is virtual and smaller than the object.
B It is virtual and larger than the object.
C It is real and smaller than the object.
D It is real and larger than the object.

16. In the drawing below, pulses Q and R are traveling down a rope attached to a rigid barrier.

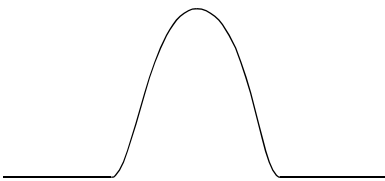


When the reflection of R interferes with Q, what will the rope look like?

A



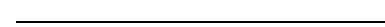
B



C



D



17. A fire truck with a siren blaring approaches a student. How does the sound heard by the driver of the fire truck compare to the sound heard by the student?

- A The driver hears the same frequency, and the student hears a lower frequency and then a higher frequency.
- B The student hears a higher frequency than the driver.
- C The driver hears a higher frequency than the student.
- D The driver hears the same frequency as the student.

End of Goal 7 Sample Items

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Answers to EOC Physics Sample Items

Goal 7

1. Objective 7.01

Analyze the relationship among the characteristics of waves: a. Wavelength b. Frequency Period Amplitude.

Thinking Skill: Applying **Correct Answer:** C

2. Objective 7.01

Analyze the relationship among the characteristics of waves: a. Wavelength b. Frequency Period Amplitude.

Thinking Skill: Analyzing **Correct Answer:** A

3. Objective 7.01

Analyze the relationship among the characteristics of waves: a. Wavelength b. Frequency Period Amplitude.

Thinking Skill: Applying **Correct Answer:** B

4. Objective 7.01

Analyze the relationship among the characteristics of waves: a. Wavelength b. Frequency Period Amplitude.

Thinking Skill: Analyzing **Correct Answer:** B

5. Objective 7.01

Analyze the relationship among the characteristics of waves: a. Wavelength b. Frequency Period Amplitude.

Thinking Skill: Applying **Correct Answer:** A

6. Objective 7.01

Analyze the relationship among the characteristics of waves: a. Wavelength b. Frequency Period Amplitude.

Thinking Skill: Analyzing **Correct Answer:** C

7. Objective 7.02

Describe the behavior of waves in various media.

Thinking Skill: Analyzing **Correct Answer:** B

8. Objective 7.02

Describe the behavior of waves in various media.

Thinking Skill: Analyzing **Correct Answer:** A

9. Objective 7.02

Describe the behavior of waves in various media.

Thinking Skill: Analyzing **Correct Answer:** A

Answers to EOC Physics Sample Items

Goal 7

- 10. Objective 7.03**
Analyze the behavior of waves at boundaries between media: Reflection Refraction.
Thinking Skill: Analyzing **Correct Answer:** D
- 11. Objective 7.03**
Analyze the behavior of waves at boundaries between media: Reflection Refraction.
Thinking Skill: Analyzing **Correct Answer:** B
- 12. Objective 7.03**
Analyze the behavior of waves at boundaries between media: Reflection Refraction.
Thinking Skill: Applying **Correct Answer:** A
- 13. Objective 7.03**
Analyze the behavior of waves at boundaries between media: Reflection Refraction.
Thinking Skill: Analyzing **Correct Answer:** A
- 14. Objective 7.03**
Analyze the behavior of waves at boundaries between media: Reflection Refraction.
Thinking Skill: Analyzing **Correct Answer:** B
- 15. Objective 7.03**
Analyze the behavior of waves at boundaries between media: Reflection Refraction.
Thinking Skill: Analyzing **Correct Answer:** D
- 16. Objective 7.05**
Analyze the relationship between the phenomena of interference and the principle of superposition.
Thinking Skill: Analyzing **Correct Answer:** A
- 17. Objective 7.06**
Analyze the frequency and wavelength of sound produced by a moving source (the Doppler Effect).
Thinking Skill: Analyzing **Correct Answer:** B