

PracTest Waves

ID#

- Objects that undergo simple harmonic motion are those that have been displaced slightly from
 - stable equilibrium
 - unstable equilibrium
 - neutral equilibrium
 - any of these
- A spring-mass oscillator executes simple harmonic motion with a period T . If the mass being used were increased, the period of the new oscillator would be
 - less than T
 - equal to T
 - greater than T
- Two identical springs, one on earth and the other on the moon, are used to make spring-mass oscillators with identical periods. The mass used on the earth oscillator is $_?_$ the mass used for the moon oscillator
 - smaller than
 - greater than
 - equal to
- A simple pendulum executes simple harmonic motion with a period T . If the length of the cord were decreased, the period of the new oscillations would be
 - less than T
 - equal to T
 - greater than T
- Which of the senses listed below are activated by waves?

I. sight	II. taste	III. smell	
A. I only	B. II only	C. III only	D. I and II only
E. I and III only	F. II and III only	G. I, II, and III	H. None
- Waves made in a string are
 - longitudinal
 - transverse
 - a mixture of longitudinal and transverse

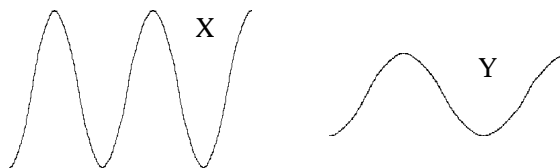
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|----------------------------|--------------------------------|----------------------------|--------------------------------|
| A. source period | B. observer period | C. wave speed | D. wavelength |
| E. source | F. observer | G. wave | H. medium |
| I. source frequency | J. observer frequency | K. source velocity | L. observer velocity |
| M. amplitude | N. λ | O. f_s | P. f_{obs} |
| Q. A | R. v_w | S. T_s | T. T_{obs} |
| U. v_s | V. v_{obs} | W. m | X. s |
| Y. m/s | Z. Hz | | |

Match each statement below to the corresponding term, symbol, or unit above. Each choice above may be used once, more than once, or not at all.

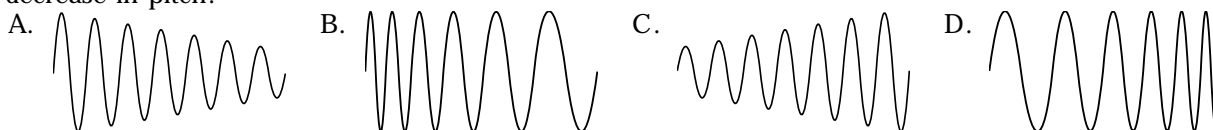
- The **term** for the rate at which successive waves are emitted or "loaded"
- The **units** of wave speed
- The **symbol** for observer period

- What is the difference between waves X and Y shown to the right?

- X carries more energy
- X carries less energy
- X was made by a higher frequency source
- X was made by a lower frequency source
- A and C
- B and D
- A and D
- B and C



11. Which pattern below corresponds to a sound that maintains constant loudness while undergoing a decrease in pitch?



12. A source of sound oscillates $6237/13$ times each second. How long does it take for the source to oscillate once?

- A. 6237 s B. 13 s C. $6237/13$ s D. $13/6237$ s

13. If the frequency of a wave source is doubled,

- A. the speed of the wave doubles B. the speed of the wave halves
C. the wavelength of the wave doubles D. the wavelength of the wave halves
E. A and/or C F. A and/or D G. B and/or C H. B and/or D

14. Two objects, A and B, are made of materials that have equal densities, yet sound travels at a higher speed when passing through A. We can reasonably conclude that object A is

- A. made of material stronger than that of B B. made of material weaker than that of B
C. longer than B D. shorter than B
E. A and C F. B and C G. A and D H. B and D

Source A is emitting sound at 300Hz, Source B is emitting sound at 600Hz. Both are generating sound waves in air.

15. If both sources are stationary, which waves travel faster?

- A. waves from A B. waves from B C. speed is same for both

16. If both A and B have wave barriers in front of them,

- A. A is traveling faster than B B. B is traveling faster than A
C. Both have the same speed

Consider "normal" to indicate the characteristics associated with sound traveling from a stationary source with a fixed frequency to a stationary observer. For the situation(s) below, indicate any deviation from that standard.

17. If the source were moving toward the stationary observer, the wave speed would be

- A. higher B. lower C. unchanged

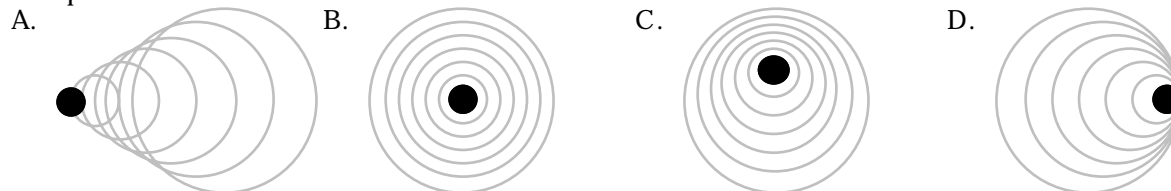
18. If the source were moving away from the stationary observer, the frequency with which the waves are observed would be

- A. higher B. lower C. unchanged

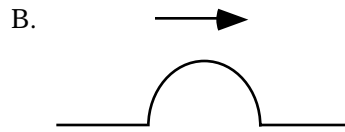
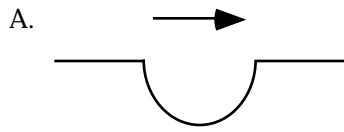
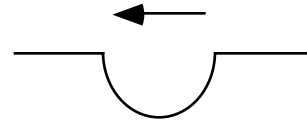
19. If the observer were moving away from the stationary source, the wavelength of the waves would be

- A. higher B. lower C. unchanged

20. Which of the diagrams below best depicts a wave source moving through a medium at a speed equal to the speed of the waves



21. A wave pulse moves to the left as shown in the diagram to the right. If it encounters a free end in the medium, the reflection will look like



C. Not enough information to make a determination