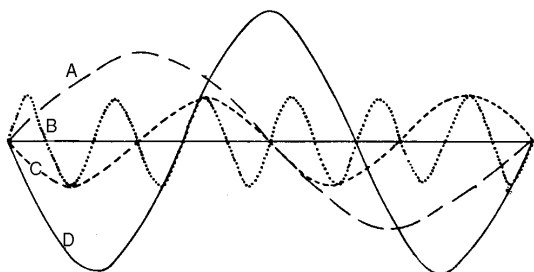


Practice - Mechanical Waves Basics

Name: _____

Date: _____

1. The diagram shown represents four waves traveling to the right in the same transmitting medium.



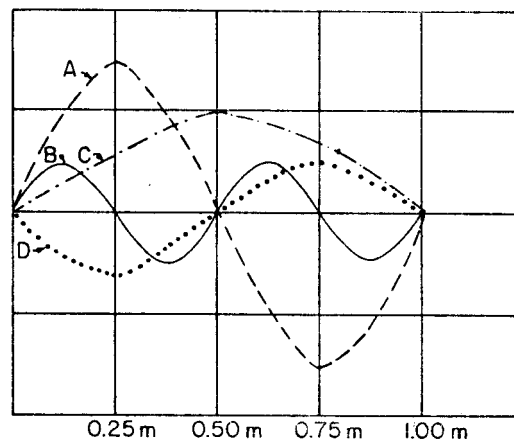
Which type of wave is represented?

- A. elliptical B. longitudinal
C. torsional D. transverse
2. Which wave has the greatest frequency?
A. A B. B C. C D. D
3. Which wave has the greatest amplitude?
A. A B. B C. C D. D
4. If a disturbance is parallel to the direction of travel of a wave, the wave is classified as
A. longitudinal B. electromagnetic
C. transverse D. torsional
5. As a longitudinal wave travels horizontally, the particles of the medium vibrate
A. in a circle B. in a spiral
C. vertically D. horizontally
6. Which waves require a medium for transmission?
A. light waves B. radio waves
C. sound waves D. cosmic waves

7. Which type of wave is classified as longitudinal?

A. water B. radio C. sound D. light

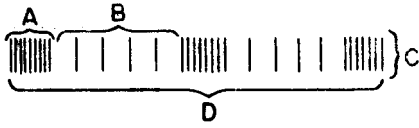
8. The diagram here represents four waves traveling to the right in the same transmitting medium.



What is the wavelength of wave A?

- A. 1.00 m B. 0.75 m
C. 0.50 m D. 0.25 m
9. Periodic waves are being produced in a ripple tank. As the rate at which the waves are produced is increased, the wavelength of the waves will
A. decrease B. increase
C. remain the same
10. If the velocity of a constant-frequency wave increases, the wavelength
A. decreases B. increases
C. remains the same

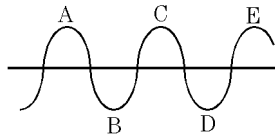
11. Which area of the longitudinal waveform area best represents the wavelength of the wave shown?



- A. A and B B. B and C
C. C, only D. D

12. In the wave diagram shown, one wavelength is the distance from point A to which point?

- A. E B. B
C. C D. D



13. Which is a unit of wavelength?
- A. cycles per second B. meters/second
C. seconds D. meters

14. The frequency of a wave with a velocity of 30 meters per second and a wavelength of 5.0 meters is

- A. 150 waves/sec B. 25 waves/sec
C. 6.0 waves/sec D. 5.0 waves/sec

15. What is the velocity of a water wave that travels a distance of 10 meters in 5.0 seconds?

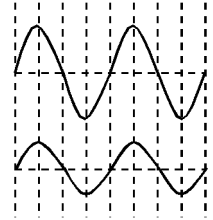
- A. 5.0 m/sec B. 2.0 m/sec
C. 15 m/sec D. 50 m/sec

16. Two waves have the same frequency in a medium. The wave with the greater energy has the greater

- A. amplitude B. velocity
C. wavelength D. period

17. The diagram shows two waves traveling in the same medium for the same length of time. The two waves have different

- A. amplitudes
B. frequencies
C. speeds
D. wavelengths



18. Water drips from a faucet at the rate of 150 drops in 120 seconds. What is the period?

- A. 0.80 sec B. 1.3 sec
C. 75 sec D. 300 sec

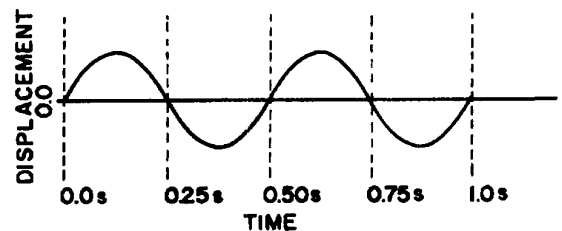
19. If 12 waves pass a point in 4 seconds, the frequency of vibration is

- A. 8 waves/sec B. 48 waves/sec
C. 3 waves/sec D. 4 waves/sec

20. The number of waves passing a point in a unit of time is called

- A. frequency B. wavelength
C. amplitude D. period

21. The graph represents the displacement of a point in a medium as a function of time as a wave passes through the medium. What is the frequency of the wave?



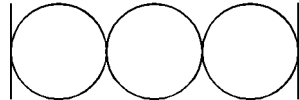
- A. $\frac{1}{2}$ Hz B. 2 Hz C. $\frac{1}{4}$ Hz D. 4 Hz

22. What is the period of a wave with a frequency of 2.0×10^2 hertz?

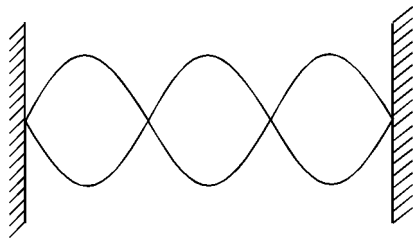
- A. 6.0×10^{-10} s B. 2.0×10^{-3} s
 C. 5.0×10^{-3} s D. 1.5×10^6 s

23. Two waves of the same wavelength (λ) interfere to form a standing wave pattern as shown in the diagram. What is the straight-line distance between consecutive nodes?

- A. 1λ B. 2λ
 C. $\frac{1}{2}\lambda$ D. $\frac{1}{4}\lambda$

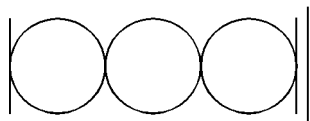


24. How many nodes are represented in the standing wave diagram?



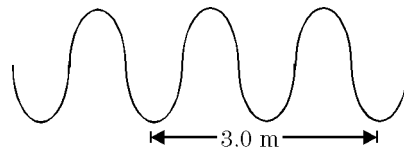
- A. 1 B. 6 C. 3 D. 4

25. The distance between successive antinodes in the standing wave pattern shown is equal to



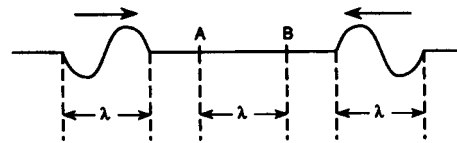
- A. 1 wavelength B. 2 wavelengths
 C. $\frac{1}{2}$ wavelength D. $\frac{1}{3}$ wavelength

26. The periodic wave in the diagram shown has a frequency of 40 hertz. What is the speed of the wave?



- A. 13 m/s B. 27 m/s
 C. 60 m/s D. 120 m/s

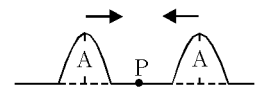
27. The diagram pictured shows two pulses, each of length λ , traveling toward each other at equal speed in a rope. Which diagram best represents the shape of the rope when both pulses are in region AB?



- A. B.
 C. D.

28. The diagram shown represents a rope along which two pulses of equal amplitude, A, approach point P. When the two pulses meet at P, the vertical displacement of the rope at point P will be

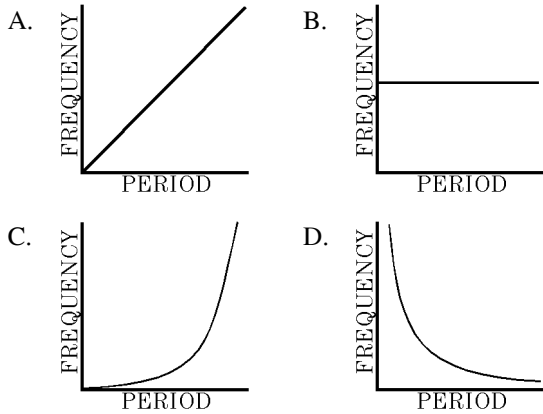
- A. A B. 2A
 C. 0 D. $\frac{A}{2}$



29. Which diagram below does not represent a periodic wave?

- A. B.
 C. D.

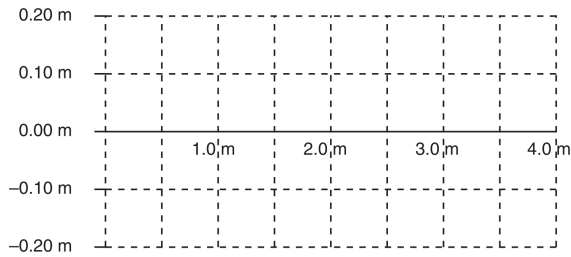
30. Which graph best represents the relationship between the frequency and period of a wave?



31. Base your answer(s) to the following question(s) on the information below.

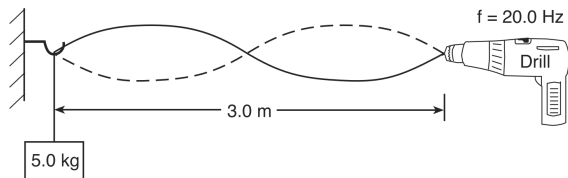
A periodic transverse wave has an amplitude of 0.20 meter and a wavelength of 3.0 meters.

On the grid provided below, draw at least one cycle of this periodic wave.



32. Base your answer(s) to the following question(s) on the information below.

One end of a rope is attached to a variable speed drill and the other end is attached to a 5.0-kilogram mass. The rope is draped over a hook on a wall opposite the drill. When the drill rotates at a frequency of 20.0 Hz, standing waves of the same frequency are set up in the rope. The diagram below shows such a wave pattern.

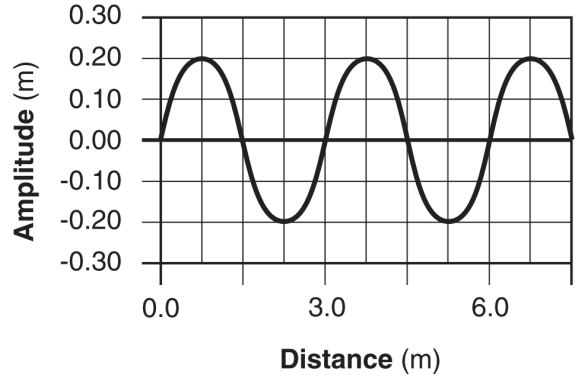


Determine the wavelength of the waves producing the standing wave pattern.

33. Base your answer(s) to the following question(s) on the information below.

A transverse wave with an amplitude of 0.20 meter and wavelength of 3.0 meters travels toward the right in a medium with a speed of 4.0 meters per second.

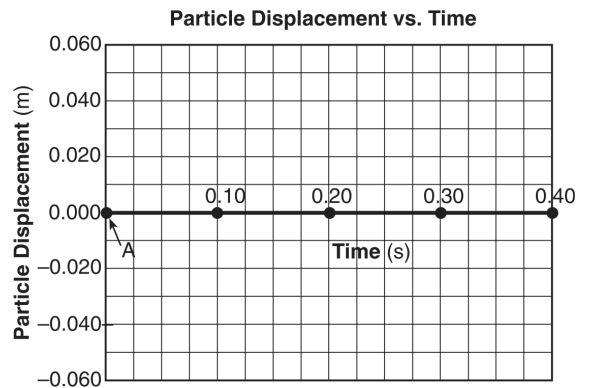
On the diagram below, place an X at each of two points that are in phase with each other.



34. Base your answer(s) to the following question(s) on the information below.

A periodic wave traveling in a uniform medium has a wavelength of 0.080 meter, an amplitude of 0.040 meter, and a frequency of 5.0 hertz.

On the grid below, starting at point A, sketch a graph of at least one complete cycle of the wave showing its amplitude and period.



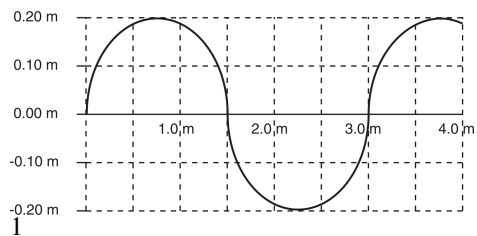
Practice - Mechanical Waves Basics 9/18/2019

1.		15.	
Answer:	D	Answer:	B
Points:	1	Points:	1
2.		16.	
Answer:	B	Answer:	A
Points:	1	Points:	1
3.		17.	
Answer:	D	Answer:	A
Points:	1	Points:	1
4.		18.	
Answer:	A	Answer:	A
Points:	1	Points:	1
5.		19.	
Answer:	D	Answer:	C
Points:	1	Points:	1
6.		20.	
Answer:	C	Answer:	A
Points:	1	Points:	1
7.		21.	
Answer:	C	Answer:	B
Points:	1	Points:	1
8.		22.	
Answer:	A	Answer:	C
Points:	1	Points:	1
9.		23.	
Answer:	A	Answer:	C
Points:	1	Points:	1
10.		24.	
Answer:	B	Answer:	D
Points:	1	Points:	1
11.		25.	
Answer:	A	Answer:	C
Points:	1	Points:	1
12.		26.	
Answer:	C	Answer:	C
Points:	1	Points:	1
13.		27.	
Answer:	D	Answer:	D
Points:	1	Points:	1
14.		28.	
Answer:	C	Answer:	B
Points:	1	Points:	1
		29.	
		Answer:	D
		Points:	1

30.
 Answer:
 Points:

D
 1

31.
 Answer:



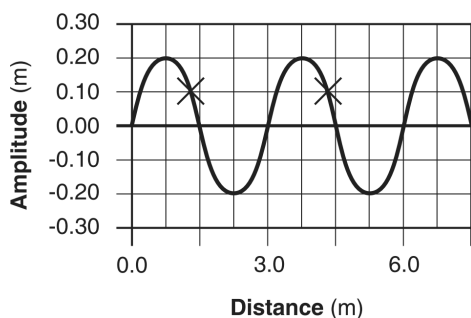
Points:

1

32.
 Answer:
 Points:

3.0 m or 3 m.
 1

33.
 Answer:

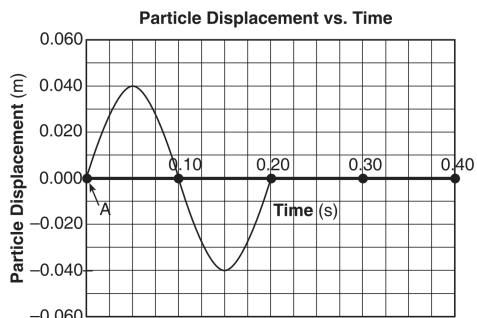


Points:

1

34.
 Answer:

amplitude \approx 0.3 grid space.
 period \approx 0.3 grid space.



Points:

1