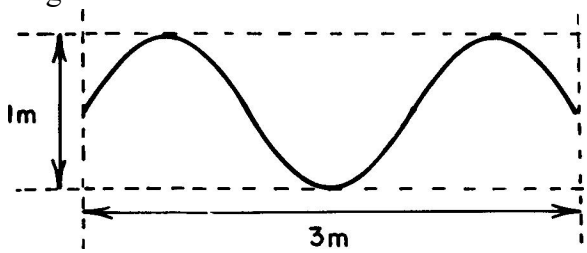
FARAH OMAR SECONDARY SCHOOL
Education Decides our Future
Near the Imbiral Hotel
Hargeisa, Somaliland

FORM FOUR **INDIVIDUAL ASSINGMENT AND WORKSHEET**

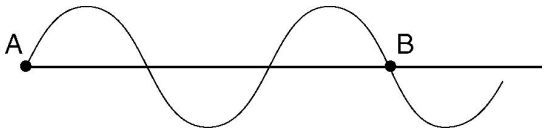
Name:……

1. What is the wavelength of the wave shown in to diagram below?



A)1 m B) 2 m C) 3 m D) 0.5 m

2. The diagram below shows two points, *A* and *B*, on a wave train.

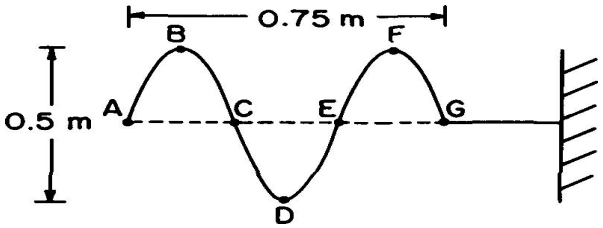


How many wavelengths separate point *A* and point *B*?

A) 1.0 B) 1.5 C) 3.0 D) 0.75

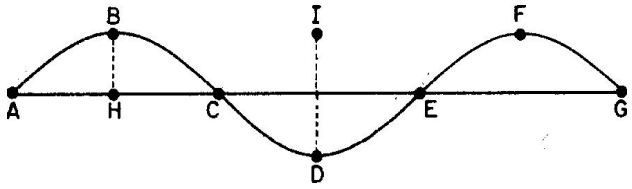
3. Base your answer to the following question on the diagram below which represents a wave traveling to the right along an elastic medium.

What is the amplitude of the wave?



A) 1.0 m B) 0.75 m
C) 0.50 m D) 0.25 m

Base your answers to questions **4** and **5** on the diagram below, which represents a transverse wave.



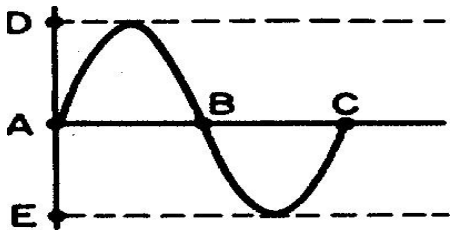
4.A wavelength is the distance between points

A) *A* and *C* **B) *A* and E**
C) *B* and H **D) I and *D***

5.The amplitude of the wave is the distance between points

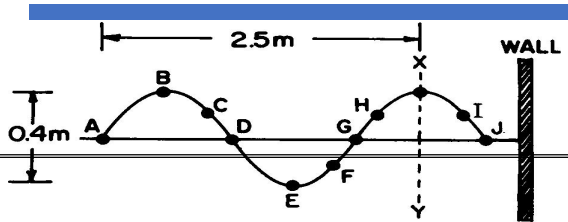
A) *A* and *C* **B) *A* and E**
C) *B* and *H* **D) *I* and *D***

6.The amplitude of the wave shown below represented by the distance between points



A) *A* and *B* **B) *A* and *C***
C) *A* and *D* **D) *E* and *D***

Base your answer to the following question on the diagram below which represents a segment

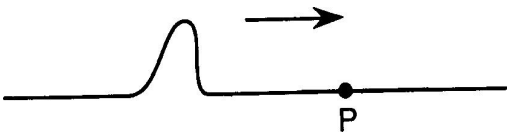


of a periodic wave traveling to the right in a steel spring.

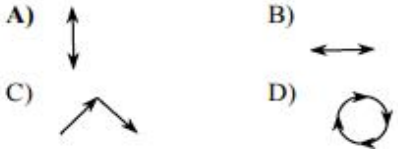
What type of wave is illustrated by the diagram?

A) torsional **B) longitudinal**
C) elliptical **D) transverse**

8. The diagram below shows a transverse pulse moving to the right in a string.



Which diagram best represents the motion of point *P* as the pulse passes point *P*?



9. When a transverse wave is moving through a medium, what is the action of the particles of the medium?

A) They vibrate in a direction parallel to the direction.
B) They vibrate in a direction perpendicular to the direction in which the wave is moving.

C) They remain at rest.

10. Which is an example of a longitudinal wave?

A) gamma ray **B) X-ray**

C) sound wave **D) water wave**

11. As a longitudinal wave travels horizontally, the particles of the medium vibrate

A) in a circle **B) in a spiral**
C) vertically **D) horizontally**

12. Base your answer to the following question on the accompanying diagram which represents a sound wave and its corresponding pattern on an oscilloscope screen.

What type of wave is the sound wave?

A) elliptical **B) transverse**

C) torsional **D) longitudinal**

13. What is the frequency of a wave if its period is 0.25 second?

A) 1.0 Hz **B) 0.25 Hz**
C) 12 Hz **D) 4.0 Hz**

14. What is the period of a periodic wave that has a frequency of 60. hertz?

A) 1.7×10^{-2} s **B) 2.0×10^{4} s**
C) 3.0×10^{-3} s **D) 3.3×10^{2} s**

15. What is the period of a wave whose frequency is 256 cycles per second?

A) 1 s **B) 1/256 s**
C) 256 s **D) 512 s**

16. An observer counts 4 complete water waves passing by the end of a dock every 10. seconds. What is the frequency of the waves?

A) 0.40 Hz **B) 2.5 Hz**
C) 40. Hz **D) 4.0 Hz**

17. A duck floating on a lake oscillates up and down 5.0 times during a 10.-second interval as a periodic wave passes by. What is the frequency of the duck's oscillations?

A) 0.10 Hz **B) 0.50 Hz**
C) 2.0 Hz **D) 50. Hz**

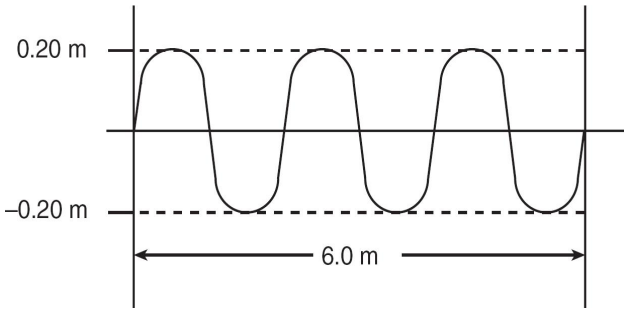
18. The speed of a transverse wave in a string is 12 meters per second. If the frequency of the source producing this wave is 3.0 hertz, what is its wavelength?

A) 0.25 m **B) 2.0 m**
C) 36 m **D) 4.0 m**

19. The rate at which a wave travels from one point to another determines the wave's

A) frequency **B) period**
C) amplitude **D) velocity**

20. The diagram below represents a wave.



What is the speed of the wave if its frequency is 8.0 hertz?

A) 48 m/s **B) 16 m/s**
C) 3.2 m/s **D) 1.6 m/s**

21. For a given frequency of a longitudinal wave, which characteristic is directly related to the energy of the wave?

A) Amplitude **B) speed of wave**
C) wavelength **D) period**

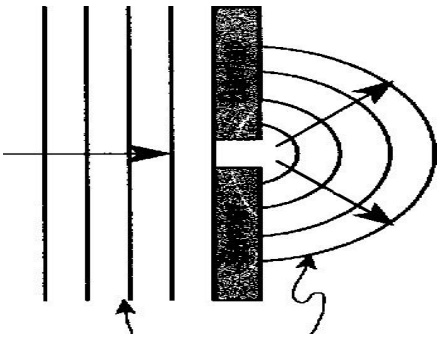
22. Wave motion in a medium transfer

A) energy, only
B) mass, only
C) both mass and energy
D) neither mass nor energy

23. A single vibratory disturbance that moves from point to point in a medium is called a

A) period **B) periodic wave**
C) wavelength **D) pulse**

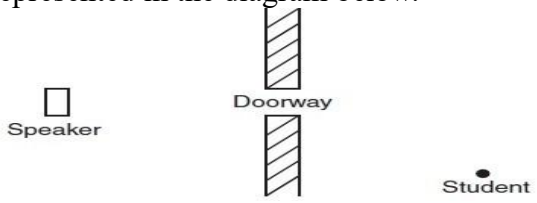
24. The diagram below shows a wave phenomenon.



The pattern of waves shown behind the barriers is the result of

A) reflection **B) diffraction**
C) refraction **D) absorption**

25. A student listens to music from a speaker in an adjoining room, as represented in the diagram below.



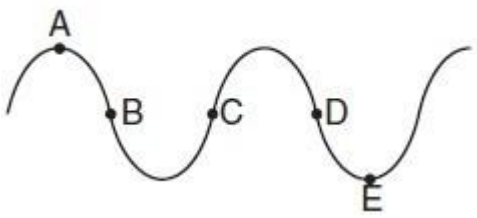
She notices that she does not have to be directly in front of the doorway to hear the music. This spreading of sound waves beyond the doorway is an example of

A) the Doppler effect **B) resonance**
C) refraction **D) diffraction**

26. A light wave has a frequency of 5.4×10^{14} cycles per second and a wavelength of 5.5×10^{-17}meter. What is the approximate speed of the wave?

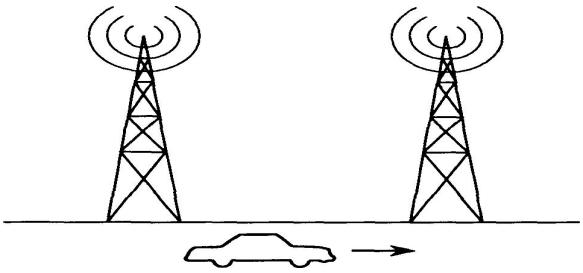
A) $1.0 \times 10^{8}\ \mathrm{m/s}$ **B)** $2.0 \times 10^{8}\ \mathrm{m/s}$
C) $3.0 \times 10^{8}\ \mathrm{m/s}$ **D)** $4.0 \times 10^{8}\ \mathrm{m/s}$

27. Which two points on the wave shown in the diagram below are in phase with each other?



A) ***A*** **and** ***B*** **B)** ***A*** **and** ***E***
C) ***B*** **and** ***C*** **D)** ***B*** **and** ***D***

28. A car radio is tuned to the frequency being emitted from two transmitting towers. As the car moves at constant speed past the towers, as shown in the diagram below, the sound from the radio repeatedly fades in and out.



This phenomenon can best be explained by

A) Refraction **B) interference**
C) reflection **D) resonance**

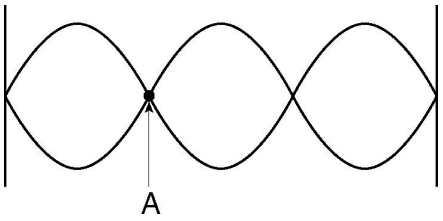
29.In order for standing waves to form in a medium, two waves must

A) have the same frequency
B) have different amplitudes
C) have different wavelengths
D) travel in the same direction

30. Two waves traveling in the same medium and having the same wavelength (λ) interfere to create a standing wave. What is the distance between two consecutive nodes on this standing wave?

A) λ **B)** $\frac{3\lambda}{4}$ **C)** $\frac{\lambda}{2}$ **D)** $\frac{\lambda}{4}$

31. The diagram below shows a standing wave.



Point *A* on the standing wave is
A) a node
B) an antinode

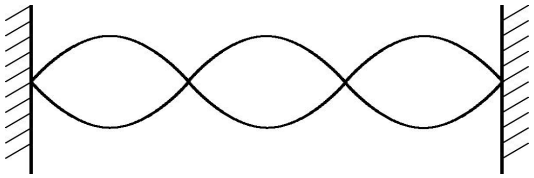
32.The diagram below represents a standing wave.



The number of nodes and antinodes shown in the diagram is

A) 4 nodes and 5 antinodes
B) 5 nodes and 6 antinodes
C) 6 nodes and 5 antinodes
D) 6 nodes and 10 antinodes

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



A) 1 B) 6 C) 3 D) 4

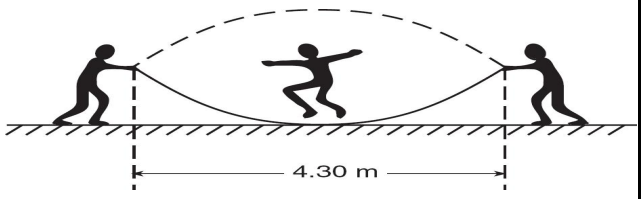
34.Standing waves in water are produced most often by periodic water waves

A) being absorbed at the boundary with a new medium
B) refracting at a boundary with a new medium
C) diffracting around a barrier
D) reflecting from a barrier

35. Standing waves are produced by the interference of two waves with the same

A. frequency and amplitude, but opposite directions
B. frequency and direction, but different amplitudes
C. amplitude and direction, but different frequencies
D. frequency, amplitude, and direction

36. While playing, two children create a standing wave in a rope, as shown in the diagram below. A third child participates by jumping the rope.



What is the wavelength of this standing wave?

A) 2.15 m B) 4.30 m
C) 6.45 m D) 8.60 m

37.As a periodic wave travels from one medium to another, which pair of the wave's characteristics do not change?

A) period and frequency
B) period and amplitude
C) frequency and velocity
D) amplitude and wavelength

38.The change in the direction of a wave when it passes obliquely from one medium to another is called

A) diffraction B) interference
C) refraction D) superposition

39. As a wave travels into a different medium with a change in direction, there will be a change in the wave's

A) speed B) frequency
C) period D) phase

40. The direction of waves is parallel to the distance of vibration in

A. transverse waves
B. longitudinal waves
C. both transverse and longitudinal waves
D. none of the wave

Answer Key

1. ___
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