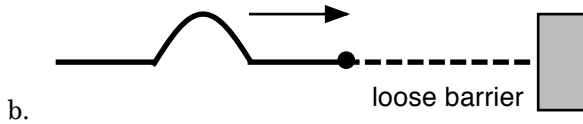
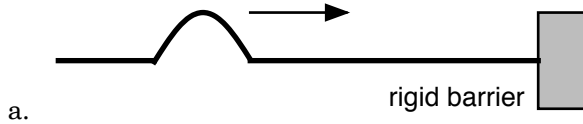


Wave Review

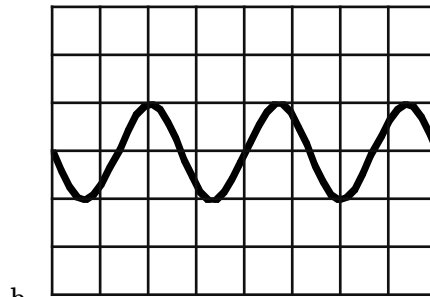
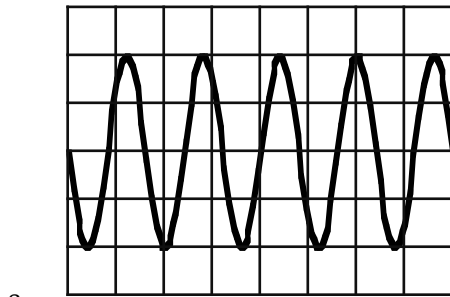
- For each of the following variables, state what they represent and what units are used to measure them:
 - v
 - λ
 - f
 - T
- What is the relationship (equation) between speed, wavelength and frequency?
- What is the relationship (equation) between frequency and period?
- Define each of the following terms:
 - Crest / Trough
 - Diffraction
 - Reflection
 - Angle of Incidence / Reflection
 - Node / Anti-Node
 - Constructive / Destructive Interference
 - Focus
 - Plane / Straight Wave
 - Circular Wave
- We have looked at several wave characteristics, including wavelength, frequency and amplitude. Do any of these things affect how fast a wave travels?
- What do you have to do to a slinky to make waves travel faster? How about slower?
- Was there anything you could do to change the speed of the waves in the ripple tanks?

Wave Review

8. A wave is sent down a slinky as shown. Draw / describe what the reflected waves will look like for each situation.



9. What are the amplitudes and wavelengths for the following waves? (Scale = 1/4")

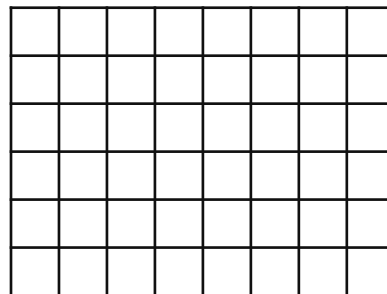
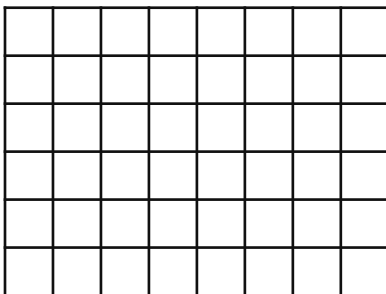


- c. Which wave has a higher frequency?

10. Draw the following waves and show their superposition:

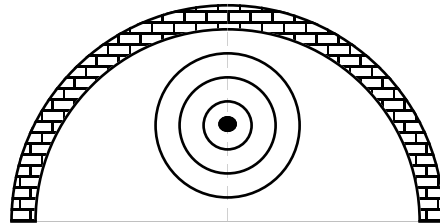
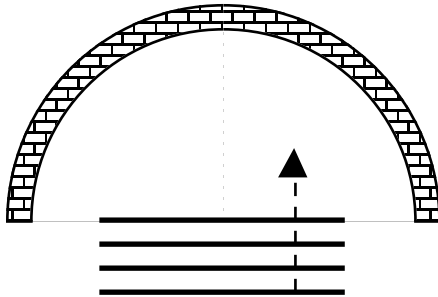
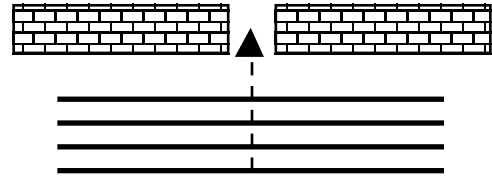
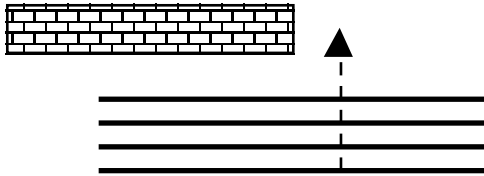
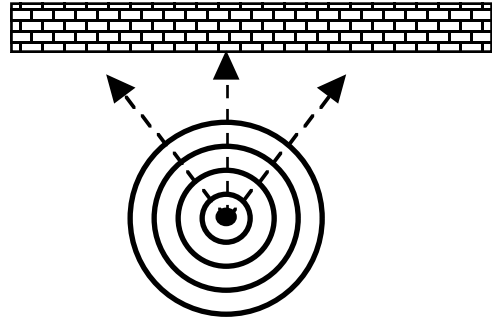
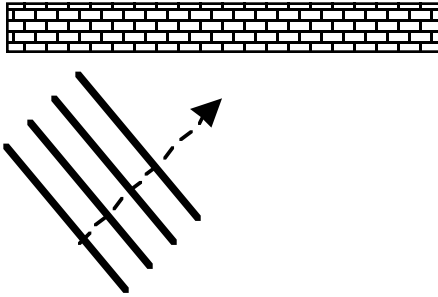
A: Wavelength = 1", Amplitude = 1/2"
 B: Wavelength = 1", Amplitude = 1/4"
in phase

A: Wavelength = 1", Amplitude = 1/2"
 B: Wavelength = 1", Amplitude = 1/4"
180° out of phase



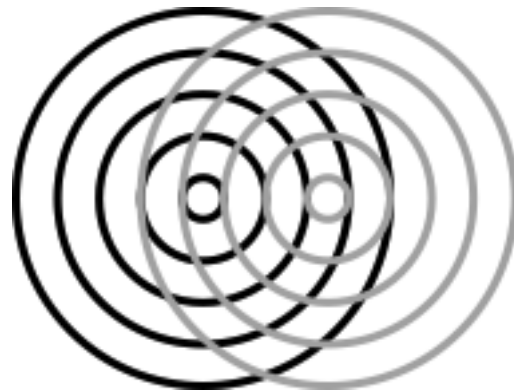
Wave Review

11. The following pictures show waves and barriers. Draw in and describe what will happen to the waves in each case:



12. The picture at right shows two identical waves being created from two different spots and spreading out and overlapping.

- a. Where would be a node? What is happening there?
- b. Where would be an anti-node? What is happening there?
- c. Sketch in the nodal lines for this situation.



Wave Review

13. What is the period of a wave with a frequency of 256 Hz?

14. What is the frequency of a wave that has a period of 25 seconds?

15. You are bobbing up and down in the water, going up and down once every 6 seconds.
What is your frequency and period of bobbing up and down?

16. Sound travels at 340 m/s. How long is a wave that has a frequency of 256 Hz?

17. You notice waves at the beach with a wavelength of 3 meters and a frequency of 0.1 Hz.
How fast are the waves traveling?

18. Waves travel in steel at about 3000 m/s. If there are waves with a wavelength of 25 meters, what is their frequency?

19. In a certain gas, you notice that 150 Hz waves have a wavelength of 4.5 meters. How fast do the waves travel in the gas?

20. You are floating in the ocean going up and down once every 7 seconds as waves go by.
You notice that the distance between wave crests is 15 meters. How fast are the waves traveling?