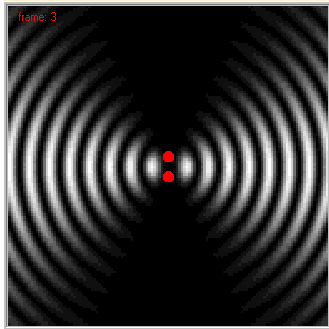


Worksheet for Exploration 37.1: Varying Numbers and Orientations of Sources



Two sources of light waves of equal frequency and amplitude are shown. In the amplitude view, the greatest amplitude is represented by white, negative amplitudes are represented by black, and areas with zero amplitude are represented by gray. In the intensity view, the greatest magnitude of the amplitude (positive or negative) is represented by white, while black shows regions of zero amplitude (**position is given in nanometers**). [Restart](#).

- a. What would the pattern look like (in both the amplitude and intensity views) if one source were removed?

Answer: [view with one source](#).

- b. What is the wavelength? (Check both the amplitude and intensity views.)
- c. In which view do you measure the wavelength by measuring the distance from the middle of the white band to the middle of the adjacent white band, and in which view do you have to measure the distance across two white bands (or black bands)? Why?
- d. What would the pattern look like if the two sources were in phase with each other, but rotated 90° to lie on the x axis?

Answer: [rotate sources](#).

- e. Explain why the pattern looks the way it does.