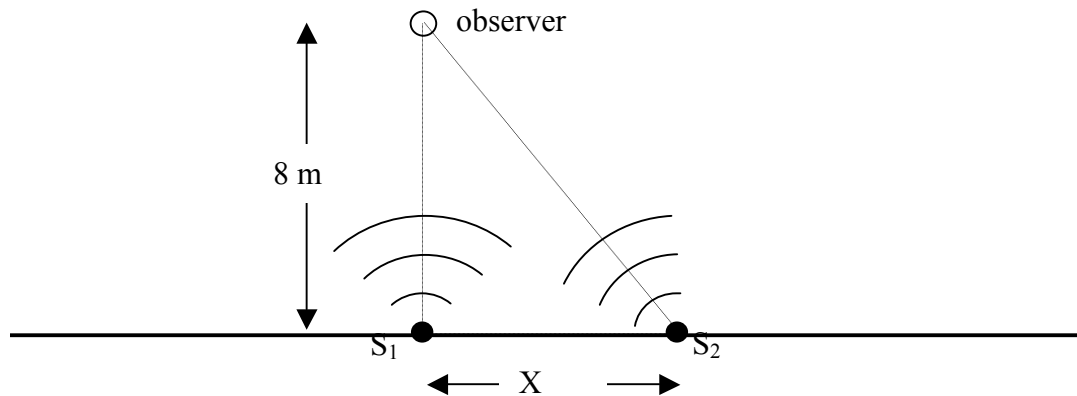The observer wants to adjust two speakers so to maximize the intensity heard. The speakers are coherent and in phase. Separately the intensity of each speaker is 2 W/m^2. Assume that the speed of sound is 340 m/s.

a) [3 points] What is the maximum possible intensity the observer can hear?

b) [7 poinst] Both speakers are on and broadcasting at a frequency of 20 Hz. Speaker 1 is fixed but speaker 2 can be moved anywhere along the solid line. Write an equation for the distances X where speaker 2 can be placed so the observer hears maximum intensity. Note, there may be multiple such distances.

c) [5 points] Suppose the observer wants to set X=6 m but is willing to adjust the relative phase between speakers 1 and 2. What relative phase does the observer need to choose to hear maximum intensity?

d) [5 points] The observer discovered that the relative phase Φ in part (c) was accidentally set to -Φ. What intensity does the observer hear?