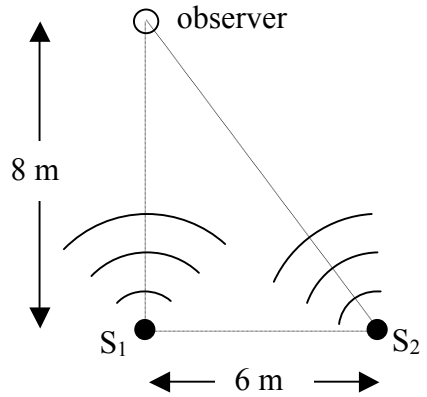
Physics 214 **Quiz 1-4** **Week 2**

The two speakers, S_1 and S_2, are adjusted so that the observer (at the location shown in the picture) hears an intensity of 10 W/m^2 when either S_1 or S_2 is sounded alone. The speakers are coherent and in phase. Assume that the speed of sound is 340 m/s.



a) Both speakers are on. As the frequency is varied, the combined intensity heard by the observer will change. What are the maximum (I_{max}) and minimum (I_{min}) values of the intensity as the frequency takes on all possible values?

I_{max} =

I_{min} =

b) Find the lowest frequency for which the observer will hear the maximum intensity, I_{max}, you calculated in part a.

c) Find the lowest frequency for which the observer will hear $I_{max}/2$ when both speakers are on.