

PHY102
Physics of Music
Spring 2008
due March 14 before class

- 1) Speakers are reasonably good at projecting high frequency sounds towards one direction. But low frequency sounds, diffract and spread all over the front and the back resulting in only half of the sound intensity on the front side. How many decibels the bass should be enhanced by to correct for this effect ?
- 2) On a good night, the front row of a rock concert would surely result in a 120 dB sound level. An iPod produces 100 dB. How many iPods would be needed to produce the same intensity as the front row of a rock concert?
- 3) By how many decibels a sound decreases as we move away from the sound source doubling our distance from it ?
- 4) Bob is sitting 20 feet away from a sound source whose sound intensity level he measures as 80 dB. Alice is sitting 40 feet away from the same source.
 - a) What is the sound intensity level (SIL) Alice measures (in dB's) ?
 - b) Would the difference in sound intensity levels between Bob and Alice change if the sound gets louder ?