

**Physics Worksheet – Unit 12.2**

1. Calculate the intensity of the sound waves from an electric guitar's amplifier at a distance of 5 m when its power output is equal to each of the following values:
  - a. .25 W
  - b. .50 W
  - c. 2 W
2. At a maximum level of loudness, the power output of a 75 piece orchestra radiated as sound is 70 w. What is the intensity of these sound waves to a listener who is sitting 25 m from the orchestra?
3. If the intensity of a person's voice is  $4.6 \times 10^{-7} \text{ W/m}^2$  at a distance of 2 m, how much sound power does that person generate?
4. How much power is radiated as sound from a band whose intensity is  $1.6 \times 10^{-3} \text{ W/m}^2$  at a distance of 15 m?
5. The power output of a tuba is .35 W. At what distance is the sound intensity of the tuba  $1.2 \times 10^{-3} \text{ W/m}^2$ .
6. When the decibel level of traffic in the street goes from 40 to 60 dB, how much greater is the intensity of noise?
7. If two flutists play their instruments together at the same intensity, is the sound twice as loud? Why or why not?