Decibels, Intensity, Distance **Name** _____
Physics II
Chapter 12 **Date** _____ **Period** _____

1. The sound level 10 m from a wood chipper is 80 dB. What is the value of the acoustic intensity at that distance?

   _____

2. What is the *total* acoustic power of the wood chipper, assuming that the acoustic energy is distributed spherically and uniformly around the wood chipper?

   _____

3. What will be the intensity of the wood chipper sound 100 m from the wood chipper?

   _____

4. What will be the sound level 100 m from the wood chipper?

   _____

5. What will be the intensity of the wood chipper sound 20 m from the wood chipper?

   _____

6. What will be the sound level 20 m from the wood chipper?

   _____

7. If the sound level of a fire alarm is increased by 10 dB, by what factor does the acoustic intensity increase?

_____

8. If a sound level is increased from 80 dB to 100 dB, by what factor does the sound intensity change?

_____

9. If a sound level is increased from 80 dB to 120 dB, by what factor does the sound intensity change?

_____

10. If a sound level is decreased from 80 dB to 40 dB, by what factor does the sound intensity change?

_____

11. In Greek mythology, the Sirens (Greek singular: $\Sigma\epsilon\iota\rho\eta\nu$) were dangerous creatures, who lured nearby sailors with their enchanting music and singing voices to shipwreck on the rocky coast of their island. If the sound level of a Siren at 100 m distance is 80 dB, how far away would you have to be to reduce the sound level to 74 dB? to 40 dB?

74 dB _____

40 dB _____