

1. Determine the intensity of sound measured at a distance of 15 m from a 100 W speaker.
2. Determine the distance at which the intensity due to a 50 W speaker is $0.02 W/m^2$.
3. The intensity of sound near an observer is $0.01 W/m^2$. Determine the decibel level of the sound as measured by this observer.
4. The decibel level of sound is observed to be 80 dB . Determine the intensity of the sound.
5. The intensity of sound at a distance r from a source is I . Determine the intensity at a distance $2r$.
6. Determine the decibel level of sound of intensity $0.02 W/m^2$. Determine the decibel level if the intensity is reduced to $0.0002 W/m^2$. What can conclude about the change in decibel level if the intensity is reduce by a factor of 100? What would the decibel level be if the intensity was reduced by a factor of 1000?
7. The decibel level of sound measured at a distance of 8 m from a source is 75 dB . Determine the distance at which the decibel level is 85 dB .
8. Two tuning forks have frequencies 500 Hz and 502 Hz . Determine the frequency of the beats when the tuning forks are simultaneously struck. Determine the time period of the beats.
9. Two tuning forks, one of frequency 300 Hz and another of unknown frequency, are simultaneously struck. The beats produced have a time period of 0.4 s . Determine the unknown frequency.
10. A frequency of a stationary horn is 600 Hz . An jogger running at a uniform speed of 7 m/s is 50 m from the horn. The speed of sound is 340 m/s . Determine the frequency heard by the jogger
 - (a) while he is running toward the horn.
 - (b) while he is running away from the horn.
11. A observer is standing still on a platform. A train moving at 30 m/s blasts its horn at 800 Hz . Determine the frequency heard by the observer on the platform
 - (a) while the train is moving towards her.
 - (b) while the train is moving away from her.
12. A train is moving at a speed of 25 m/s blasts its horn at 700 Hz . A person is in a car driving at a speed of 20 m/s . Initially the train and the car are moving towards each other. Determine the frequency of the train whistle heard by the person in the car while the they are heading toward each other and after they have passed each other.