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Identifying the Properties of Constructive and Destructive Interference

The purpose of this experiment was to see if there was a relationship between the two sound waves interfering and the new wave being produced. In this experiment I used the program True RTA to produce exact frequency and amplitude. To be able to visually see a sound wave I used an instrument called a Ruben's tube. Two sound waves were put into both sides of the tube as a result interference between the two waves occurred. When a frequency of the same sound wave was put into the tube the new wave produced higher amplitude. When I tried the experiment again the amplitude decreased. I tried the same experiment ten times half of the time the amplitude was greater and half the time the amplitude was decreased. From this I concluded that trying to get an exact frequency from both sound waves was impossible. But, when I increased the frequency by one in one of the speakers and left the same frequency in the other speaker the result was a wave that was able to move across the Ruben's tube, this is a beat. I did find that there is a relationship between the difference in frequencies and the amount of time it takes for one cycle of a wave length.