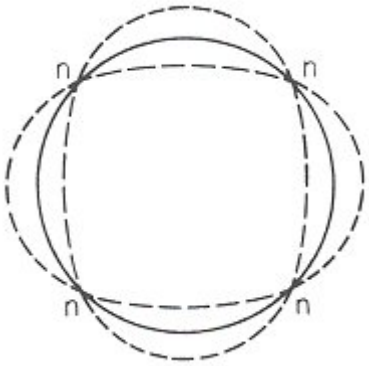
Answer #214

Two of the four statements are true: (a): The tones produced by striking the brim of the beaker at 3, 6, 9, and 12 have the same frequency, and (b) The tones produced by striking any of the diagonal points have the same frequency. However, the tones produced by striking the diagonal points are *higher* in frequency than those produced by striking the numbered points, as can be seen by clicking on the photograph at the left below to see an mpeg video of the "action."



Note that when one of the numbered points is struck the handle will be at an antinode, and therefore will vibrate. Because the handle increases the mass of the vibrating material - without changing the rigidity, or effective spring constant, of the brim of the beaker - the vibration frequency is reduced, as can be heard on the mpeg.

Hey, kids, this information can really be important to you. After a great date, when you go to a nice place for coffee and dessert you can really impress your date by showing him or her this experiment after you have finished your coffee. It has been a long time since I was in the dating game, so I don't really remember how this worked for me. Come to think of it, I don't believe that I knew about this experiment so long ago. Oh, well, lucky me.

Archive 11

Question of the Week

Outreach Index Page

Lecture-Demonstration Home Page

For questions and comments regarding the *Question of the Week* contact
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given on the Lecture-Demonstration Home Page.