Answer #264

The answer is (b): the frequency must be changed by a factor of (1/2) - decreased by a factor of 2 - in order to form a single loop standing wave. This can be seen in an mpeg video by clicking your mouse on the photograph below.

If this video goes by too fast, click your mouse here to see a slow-motion version. Note that for the first part (the two-loop standing wave) there are four wave vibrations per metronome tick, while after the frequency has been changed (the single loop standing wave) there are two wave vibrations per metronome tick. Reducing the frequency by a factor of two increases the wavelength by a factor of two, so the length of the vibrating rope includes a single loop rather than two loops.

Archive 14

Question of the Week

Outreach Index Page

Lecture-Demonstration Home Page

For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.