**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.

![Image of a standing wave experiment](image)

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.