41. The string is fixed at both ends so the resonant wavelengths are given by $\lambda = 2L/n$, where L is the length of the string and n is an integer. The resonant frequencies are given by $f = v/\lambda = nv/2L$, where v is the wave speed on the string. Now $v = \sqrt{\tau/\mu}$, where τ is the tension in the string and μ is the linear mass density of the string. Thus $f = (n/2L)\sqrt{\tau/\mu}$. Suppose the lower frequency is associated with $n = n_1$ and the higher frequency is associated with $n = n_1 + 1$. There are no resonant frequencies between so you know that the integers associated with the given frequencies differ by 1. Thus $f_1 = (n_1/2L)\sqrt{\tau/\mu}$ and

$$f_2 = \frac{n_1 + 1}{2L}\sqrt{\frac{\tau}{\mu}} = \frac{n_1}{2L}\sqrt{\frac{\tau}{\mu}} + \frac{1}{2L}\sqrt{\frac{\tau}{\mu}} = f_1 + \frac{1}{2L}\sqrt{\frac{\tau}{\mu}}\,.$$

This means $f_2 - f_1 = (1/2L)\sqrt{\tau/\mu}$ and

$$\begin{aligned}
\tau &= 4L^2\mu(f_2 - f_1)^2 \\
&= 4(0.300\,\mathrm{m})^2(0.650 \times 10^{-3}\,\mathrm{kg/m})(1320\,\mathrm{Hz} - 880\,\mathrm{Hz})^2 \\
&= 45.3\ \mathrm{N}\,.
\end{aligned}$$