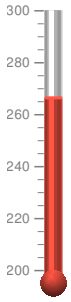
Adam Jump
MATH 216
Extra Credit Assignment
Goal: To determine if $20\,^\circ\,\mathrm{F}$ to $40\,^\circ\,\mathrm{F}$ is double the temperature in *Kelvin*

Given a temperature T_0 in Fahrenheit, the equation for conversion to Kelvin (according to *Mathematica*) is given as,

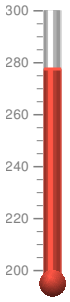
$$T_0{}^\circ\,\mathrm{F} = \frac{5}{9}\left(T_0 + \frac{45967}{100}\right)^\circ\,\mathrm{K}.$$

This means that $20\,^\circ\,\mathrm{F}$ and $40\,^\circ\,\mathrm{F}$ are equivalent to, $\frac{15989}{60}{}^\circ\,\mathrm{K}$ and $\frac{49967}{180}{}^\circ\,\mathrm{K}$, respectfully. Given this, we evaluate $\frac{15989}{60}x = \frac{49967}{180}$ where x can be determined as our scaling factor. If $x = 2$, then we can conclude that $\frac{49967}{180}{}^\circ\,\mathrm{K}$ is twice $\frac{15989}{60}{}^\circ\,\mathrm{K}$. However, we can see that $x = 49967/47967$ or approximately 1.0417. This means that $x \neq 2$, and we may conclude that $\frac{49967}{180}{}^\circ\,\mathrm{K}$ is not double $\frac{15989}{60}{}^\circ\,\mathrm{K}$.

Represented visually on a scale of 200 to $300\,^\circ\,\mathrm{K}$, we can see that the Kelvin scale is a bit more difficult to interpret than Fahrenheit or Celsius. While Kelvin has a lowest temperature of 0, it doesn't appear to be relatively scaled to temperatures we encounter in our environment (this is an extrapolation and I'm not sure if it's true). Originally, the range was set from 0 to $300\,^\circ\,\mathrm{K}$, which was barely perceptible by eye.



(a) $20\,^\circ\,\mathrm{F}$ in Kelvin



(b) $40\,^\circ\,\mathrm{F}$ in Kelvin