The purpose of the Lab is to find the spring constant for the projectile launcher through experimentation and the rule of conservation of energy of the equations U=1/2Kx2 and Force=-(du/dx)

As calculated by taking the slope of the Usprng vs. Distance from equilibrium, the potential energy is 7.8173x2 + 0.04953x +0.0168. The numbers after the initial 7.8173x2 is considered error with the system. So using the U = 1/2kx2 formula, we find that the constant k is equal to 15.635 Kg/s2.

The mathematical relationship between potential energy and compression of a spring can be seen in the equation U=1/2kx2 where U is potential Energy and x is distance from equilibrium.