

Hooke's law:

— Tension $\propto x$
↳ $T \propto x$
↳ $T = kx$

— This constant k depends on:

↳ The unstretched (natural) length of the string or spring (L)

↳ The Modulus of elasticity (λ)

— $k = \lambda/L \Rightarrow T = \frac{\lambda x}{L}$

— This is what is called Hooke's law