Hooke's law
& Energy in spring

Spring constant K tells you how strong the spring is.

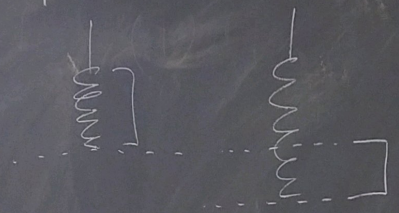
Hooke's law

$F = -kx$

F = Force in spring (N)

K = Spring Constant (N/m)

X = displacement (m)



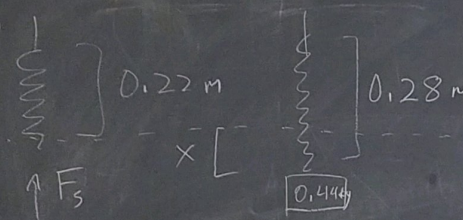
$F = -kx$

Why is it negative?

Because the force is in opposite direction of displacement

ex) 0.22 m spring that has a 0.44 kg mass attached to it stretches to a distance of 0.28 m. What is the spring constant K?

bpsphysics.weebly.com



$F_s = mg = (0.44\,kg)(9.8\,m/s^2)$

$F_s = 4.31\,N$

$F_s = -kx \qquad k = \frac{F_s}{x} = \frac{4.31\,N}{0.06\,m}$

$k = 71.9\,N/m$

Classwork 4-6

1. Say we have a spring that has a spring constant $k = 10\,N/m$. If we stretch the spring 0.05 m. What is the force of the spring?
2. A 0.30 m spring has a 2 kg weight attached to it & it stretches to a length of 0.35 m. Find the spring constant.

Find spring constant of the 3 force meters.