

### Answer on Question #38969, Physics, Mechanics | Kinematics | Dynamics

The stiffness,  $k$ , of a body is a measure of the resistance offered by an elastic body to deformation. For an elastic body with a single degree of freedom (for example, stretching or compression of a rod), the stiffness is defined as

$$k = \frac{F}{\delta}$$

where,

$F$  is the force applied on the body

$\delta$  is the displacement produced by the force along the same degree of freedom (for instance, the change in length of a stretched spring)

If  $k$  has big value it means you need more force to deformation, all in all  $k$  is physical characteristic of body and material.

There is a simple example. Two springs with different coefficients of stiffness  $k_1$  and  $k_2$ , for example. If  $k_1$  is greater than  $k_2$ , we can see that (force the same) displacement of the second spring is greater.

