Answer on Question #49050 - Engineering - Other

A spring is subjected to a force of 40 Newtons at a rest position. When an additional load of 3 N is exerted the spring has moved by 20 cm. Calculate the spring constant k of this spring.

Solution:

 $F_1 = 40 N - first force;$ $F_2 = 3 N - secon \square force;$ $\Delta x = 0.2m - change in length of the spring;$

That linear dependence of displacement upon stretching force is called Hooke's law. Final position of the spring:

$$k = \frac{F_1 + F_2 = k\Delta x_2}{\Delta x_2} = \frac{40N + 3N}{0.2 m} = 215 \frac{N}{m}$$

Answer: spring constant is equal to $215 \frac{N}{m}$.

http://www.AssignmentExpert.com/