Answer on Question #52850, Math / Calculus

Task: Force needed to compress spring is given by F=kx

Where K is the spring constant= 10N/cm

F is the force/N

x=distance compressed/cm

Use intergration to find the work done on the spring as it is compressed between x=1 and x=3cm.

Answer:

$$A = \int\limits_1^3 Fdx = \int\limits_1^3 kxdx = \frac{kx^2}{2} \Big|_1^3 = k(\frac{9}{2} - \frac{1}{2}) = 4*10 = 40 \, [N \cdot cm]$$