#Jenny

Finally I get this ebook, thanks for all these I can get now!

#Rio

Cool! I'am really happy

#Markus Jensen

I did not think that this would work, my best friend showed me this website, and it does! I get my most wanted eBook

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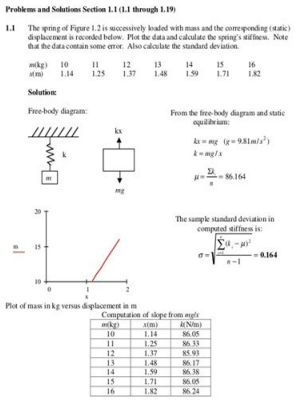
#Che Salsa

My friends are so mad that they do not know how I have all the high quality ebook which they do not!

#Diego Butler

so many fake sites. this is the first one which worked! Many thanks



Problems and Solutions Section 1.1 (1.1 through 1.19)

1.1 The spring of Figure 1.2 is successively loaded with mass and the corresponding (static) displacement is recorded below. Plot the data and calculate the spring's stiffness. Note that the data contain some error. Also calculate the standard deviation.

m(kg)	10	11	12	13	14	15	16
x(m)	1.14	1.25	1.37	1.48	1.59	1.71	1.82

Solution:

Free-body diagram:

From the free-body diagram and static equilibrium:

$kx = mg \quad (g = 9.81 m/s^2)$

$k = mg/x$

$\mu = \frac{\sum k_i}{n} = 86.164$

The sample standard deviation in computed stiffness is:

$\sigma = \sqrt{\frac{\sum (k_i - \mu)^2}{n-1}} = 0.164$

Plot of mass in kg versus displacement in m

Computation of slope from mg/x

m(kg)	x(m)	k(N/m)
10	1.14	86.05
11	1.25	86.33
12	1.37	85.93
13	1.48	86.17
14	1.59	86.38
15	1.71	86.05
16	1.82	86.24