DATA SHEET / MECHANICS / SPRING CONSTANT

Name:

1. Determining the spring constant k based on elongation

Measured data:

Mass of one nut (read from the box): m_{nut} = g = kg

Mass of the PVC rod (measured): m_{PVC} = g = kg

Load		Position of the lowest point of the spring z ( )
	n	
no load	–	
the PVC rod	0	
the PVC rod + n nut(s)		
the PVC rod + unknown mass	–	

Calculations

Graphical method:

slope calculated from the graph: $\frac{\Delta z}{\Delta n} =$

spring constant: k =

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Method of least squares:

Points used for the calculation: from n = to n = .

$\bar{n} =$

$\bar{n}^2 =$

$\overline{n^2} =$

$\bar{z} =$

$\overline{n \cdot z} =$

slope: $\frac{\overline{n \cdot z} - \bar{n} \cdot \bar{z}}{\overline{n^2} - \bar{n}^2} =$

spring constant: k =

Unknown mass: m_x =

2. Oscillations of a spring

Measured data:

number of nuts	time of 10 periods (s)

Calculations:

mass ( )	T ( )	spring constant k ( )