

Name:.....

Date:.....

Class:.....

Physics  
1<sup>st</sup> investigation

**Measurement of inertia mass using mechanical oscillator**

Used material:

.....  
.....

Scheme:

Measurement of spring constant:

$l_1 = \dots\dots\dots$  m ( mass of the weight is 50g)

$\Delta l = l - l_1$

Number of measurement	m / kg	l / m	$\Delta l$ / m	G / N	$k = G / \Delta l$	$\Delta k / \text{N.m}^{-1}$
1.	0.1					
2.	0.15					

$$\Delta k = (k_1 + k_2) / 2$$

$\Delta k = \dots\dots\dots \text{N.m}^{-1}$

Period of an mechanic oscillator:

$$T = 2\pi\sqrt{m/k}$$

m - ..... (kg)

k - ..... (N.m<sup>-1</sup>)

T - ..... (s)

$$m = (T^2 k) / (4 \pi^2)$$

Number of measurement	20 T / s	T / s	T <sup>2</sup> / s <sup>2</sup>	m / kg
1.				
2.				

$$\Delta m = (m_1 + m_2) / 2$$

$\Delta m =$  ..... kg

Comparison with the real mass of the weight:

real mass:..... (kg)

measured mass:..... (kg)

Conclusion: