

**ESTIMATION OF STRESS RELAXATION TIME  
IN THE MAXWELL ELEMENT**

Name: .....

Group: .....

Date: .....

1. Goal of the experiment: .....

2. Value of the coefficient of elasticity  $k$  of the spring:

$k \pm \Delta k =$  .....

3. Results of measurements of spring length as a function of time:  
- initial position  $l_0$  of the indicator (at the start of the experiment):

$l_0 =$  .....

Data table:

	time $t$	actual position of the indicator $l_i$	changes in spring length $\Delta l_i = l_0 - l_i$	force values $F_i = k \cdot \Delta l_i$	values of $\ln F_i$
1	0				
2					
3					
4					
5					
6					
7					
8					
9					
10					

Make graphs of:

a) the dependence of the force  $F$  on the time  $t$  (function:  $F=f(t)$ ),

b) the dependence of the  $\ln F$  on the time  $t$  (function:  $\ln F = f(t)$ )

4. Value of the stress relaxation time  $\tau$  read off from the graph  $F = f(t)$ :

$\tau =$  .....

5. Value of the directional coefficient  $a = \frac{1}{\tau}$  of the straight line:  $\ln F = \ln F_0 - \frac{t}{\tau}$ :

$a =$  .....

Value of the stress relaxation time calculated on the basis of the directional coefficient  $a$ :

$\tau =$  .....

