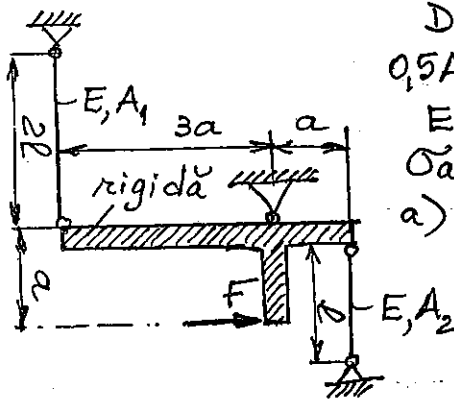


CONCURSUL PROFESIONAL STUDENTESC DE REZISTENTA MATERIALELOR  
FAZA LOCALA, BUCURESTI, 27 APRILIE 2007

DOMENIU NEMECANIC

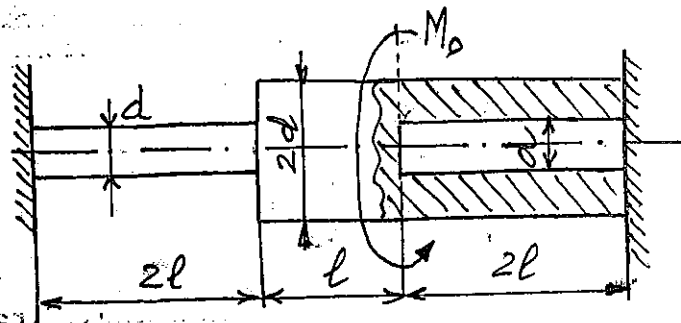
Problema 1A



Date:  $l = 0,8 \text{ m}$   
 $0,5A_1 = A_2 = A = 200 \text{ mm}^2$   
 $E = 2 \cdot 10^5 \text{ MPa}$   
 $\sigma_a = 150 \text{ MPa}$   
 a)  $F_{cap} = ?$   
 b)  $\delta_F = ?$

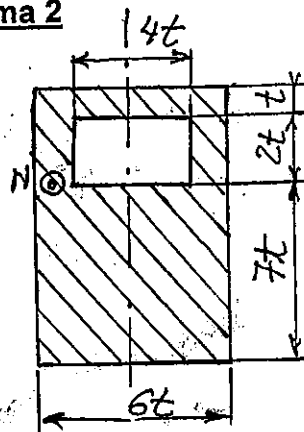
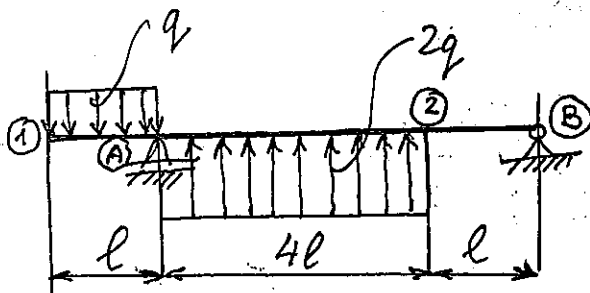
Problema 1B

Date:  $M_0 = 5 \text{ kNm}$ ;  $d = 40 \text{ mm}$



a) Diagrama  $M_t$  în funcție de  $M_0$ ;  
 b)  $\tau_{max} = ?$

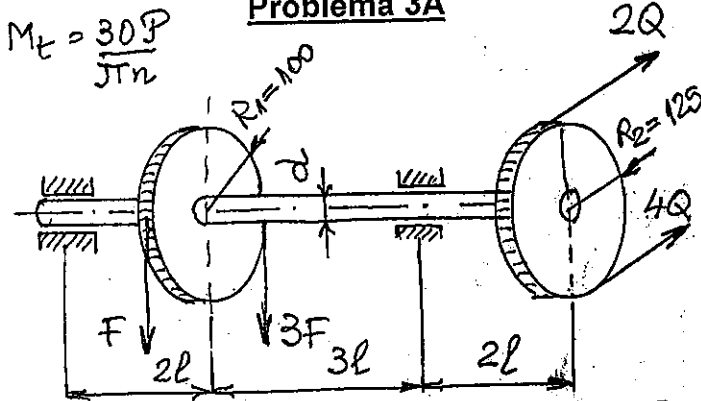
Problema 2



Date:  
 $q = 10 \frac{\text{kN}}{\text{m}}$ ;  $l = 0,5 \text{ m}$   
 $\sigma_a = 140 \text{ MPa}$   
 $E = 2 \cdot 10^5 \text{ MPa}$

a) Diagrame  $T, M$ ;  
 b)  $t = ?$   
 c)  $\sigma_N$  și  $\tau_N = ?$   
 în secțiunea ②;  
 d)  $w_2 = ?$

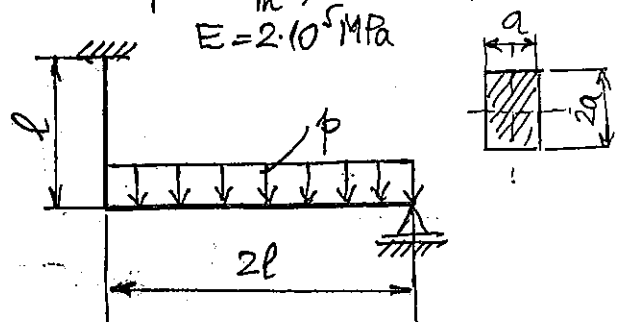
Problema 3A



Date:  $m = 300 \text{ rot/min}$ ;  $P = \pi [kW]$   
 $\sigma_a = 120 \text{ MPa}$   
 a) Diagrame  $M_y, M_z, M_t$ ; b)  $d = ?$

Problema 3B

Date:  $p = 10 \frac{\text{kN}}{\text{m}}$ ;  $l = 0,5 \text{ m}$ ;  $\sigma_a = 120 \text{ MPa}$   
 $E = 2 \cdot 10^5 \text{ MPa}$



a) Să se ridice nedeterminarea.  
 b) Diagrame  $N, T, M$   
 c)  $a = ?$