1

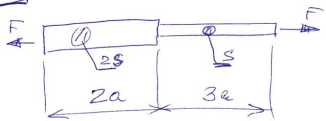
④

D: a, b, l, E, μ, F

U: N, σ, ε, Δl, Δa, Δb

+grafy

②

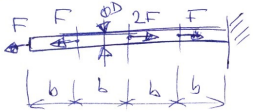


D: a, S, E, F, μ

U: N, σ, ε, Δl, ΔS

+grafy

③



U: N, σ, ε, Δl, ΔD

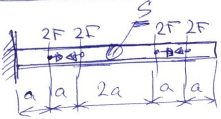
+grafy

④

D: F, Δl, ΦD, l

U: E

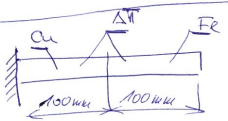
⑤



U: N, σ, ε, Δl

+grafy

⑥

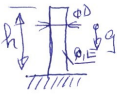


D: $\Delta T = 100°C$, $\alpha_{Cu} = 17 \cdot 10^{-6} K^{-1}$

$\alpha_{Fe} = 11\ 10^{-6} K^{-1}$

U: Δl

⑦

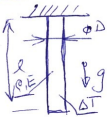


D: h, D, ρ, E, g, E, σ_D

U: h tak, aby $|\sigma| < \sigma_D$

+grafy N, σ, ε

⑧

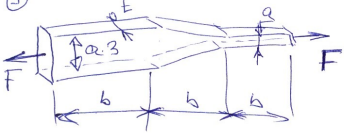


D: l, ΦD, g, ρ, E, ΔT

U: α_T vime-li, že Δl = 0

(+grafy N, σ, ε)

⑨

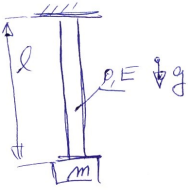


D: a, b, t, E, F

U: N, σ, ε, Δl

+grafy !

⑩



11

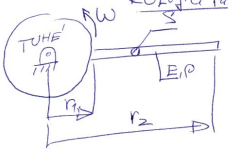
Tenký rotující prstenec

D: R, t, ρ, ω, w, R

U: $N, \sigma, \varepsilon, \Delta R$

12

Rotující rameno



D: $r_1, r_2, E, \rho, \sigma_D, \Delta r_{2D}$

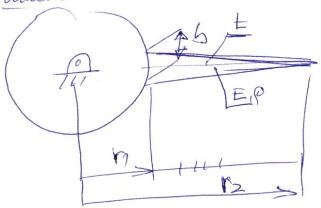
U: ω tak, aby $\sigma \leq \sigma_D$

ω tak, aby $\Delta r_2 \leq \Delta r_{2D}$

(+grafy N, σ, ε)

13

Tenké trojúhelníkové rotující rameno

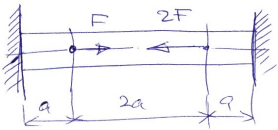


D: $r_1, r_2, b, t, E, \rho, \omega$

U: $N, \sigma, \varepsilon, \Delta r_2$

grafy

14

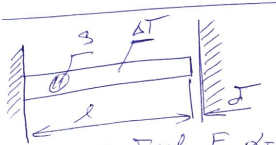


D: a, S, E, F

U: N, σ, ε, reakce

+grafy

15

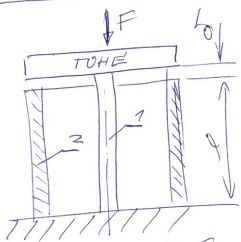


D: $l, \sigma_{zcl}, E, \alpha_T, \sigma_D$

U: • σ jako funkce ΔT (+graf)

• ΔT_D tak, aby $|\sigma| < \sigma_D$

16

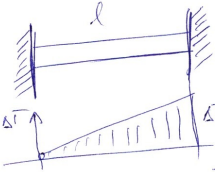


D: $l, \sigma_{zcl}, S_1, S_2, E_1, E_2$

U: $N_1, N_2, \sigma_1, \sigma_2$

v závislosti na F

17

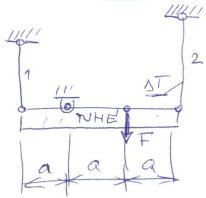


D: $l, S, E, \alpha_T, \Delta T$, liv. prvky ΔT

U: N, σ, ε, reakce

+grafy

18



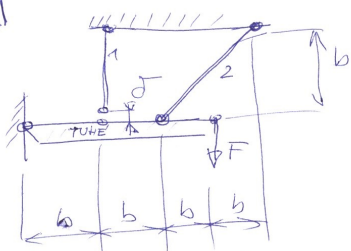
D: a, E, S, l_1, l_2

$F, \Delta T, \alpha_T$

U: síly v prutech

3

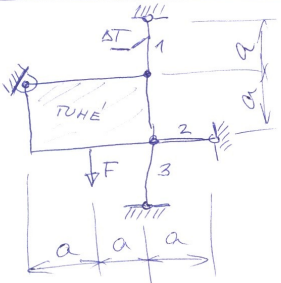
19



D: $b, \delta << b, E, S, F$

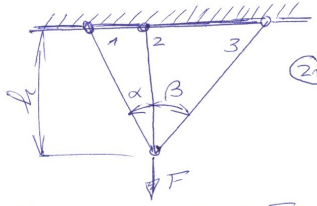
U: σ_1, σ_2

20



D: ~~a~~, $F, E, S, \Delta T, \alpha_T$, ~~E~~

U: napětí v prutech

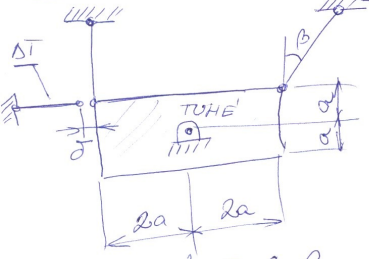


21

D: $h, \alpha, \beta, E, S, F$

U: N_1, N_2, N_3

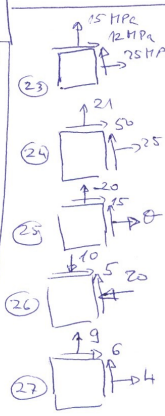
22



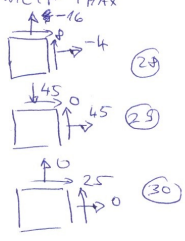
D: a, l_i, E, S, β

$\alpha_T, \Delta T, \delta << l$

U: síly v prutech

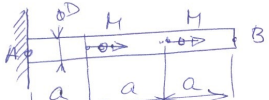


- sestrojit mohrovu kr.
- určete hl. napětí
- určete hl. roviny
- určete τ_{max}



4

31

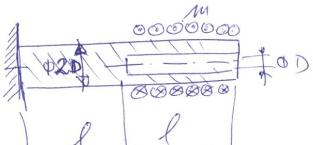


D: a, D, G, M

U: M_k, φ, v, $\varphi(x)$, φ_{AB}

+ grafy

32

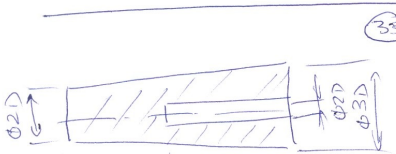


D: l, D, G, m

U: napětí, deformace

(vztahy + grafy, kde to dává smysl)

33

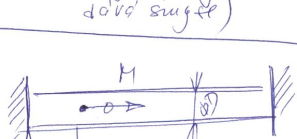


Kuželový hřídel přenáší výkon P při otáčkách n

D: P, D, n (otáčky), G

U: napětí a deformace (+ grafy)

34

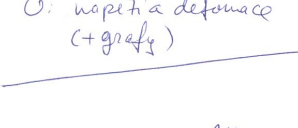


D: a, D, M, G

U: M_k, v, γ, reakce

+ grafy

35



D: b, D, m, G

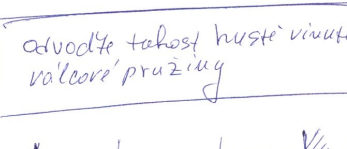
U: reakce, τ, v, $\varphi(x)$

+ grafy

36

Odvoďte tuhost ve kroucení válcové pružiny

37



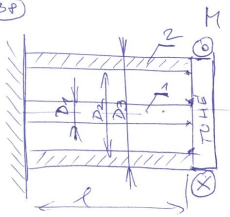
D: a, D, G, m

U: τ, v, φ, reakce

+ grafy

5

38

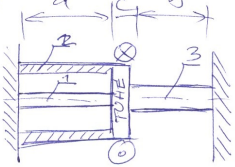


D: D_1, D_2, D_3, l

G_1, G_2

U: napětí

39



D: ~~B_1, D_2~~ a, c

1: D_1

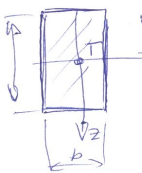
2: D_2, D_3

3: D_4

a, b, c

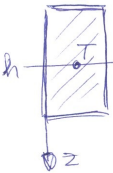
U: napětí

40



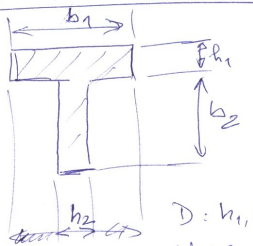
na základě definice vypočtěte J_y, y_2, D_{yz}

41



na základě definice vypočtěte J_y, y_2, D_{yz}

42



D: h_1, b_1, h_2, b_2

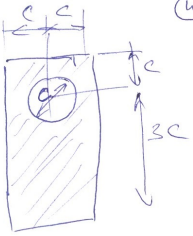
U: hlavní centrální kvadr. momenty W_o

43

3 kruhy s ϕD

určete hl. centrální kv. momenty, a W_o

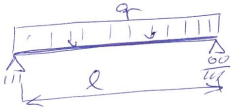
44



D: c

U: hl. centr. kv. momenty, W_o

45

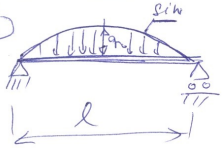


D: l, q, E, J_y

U: T, M_o, φ, w

vztahy i grafy

(46)

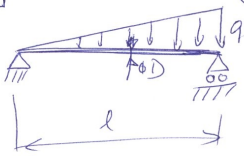


D: q_0, l, tvar q, E, J_y

U: T, M_o, φ, w + grafy

(6)

(42)



D: l, D, E, q_0

U: T, M_o, φ, w + grafy

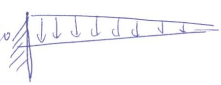
Dáno: zatížení, rozměry, J_y

U: T, M_o, φ, w + grafy pro vážl. kosmíky.

(48)

(49)

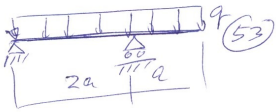
(50)



(51)

(52)

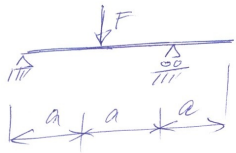
(53)



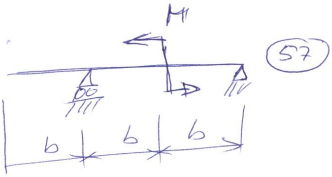
(54)

(55)

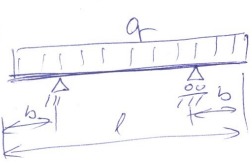
(56)



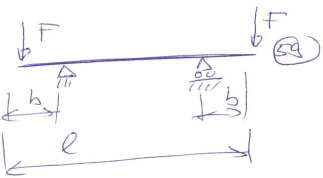
(57)



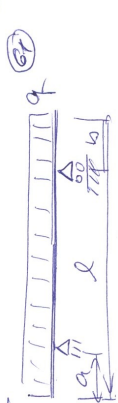
(58)



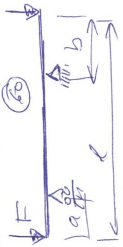
(59)

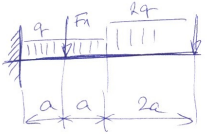


(61)



(60)



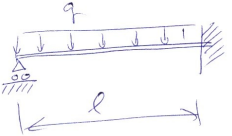


6.1

D: $F_1 = 3qa$
$F_2 = 2qa$
q, a, E, J_y

U: průhyb na konci

7

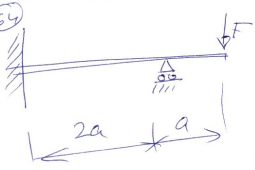


6.2

D: l, E, J_y, q

U: reakce

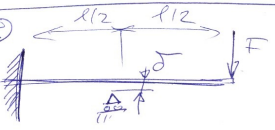
6.4



D: F, a, E, J_y

U: reakce

6.5

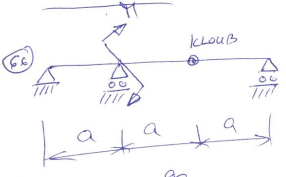


D: l, E, J_y, δ

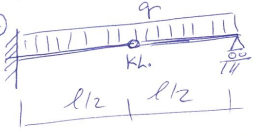
U: F při níž se nosník dotkne podpory

Určete VSÚ:

6.6

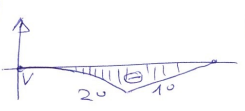


6.7

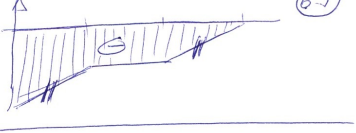


Zdaneho průběhu momentu určete zatížení nosníku:

6.8



6.9



Tyč o ΦD je natahovaná silou F a kroucená momentem M. Určete čeku podle pevnostních hypotéz pro houževnaté materiály

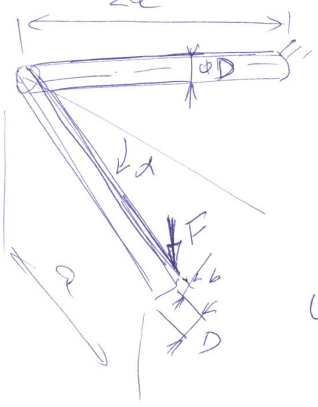
7.0

Dimenzujte stěnu tenkostěnné válcové tlakové nádoby

7.1

Dáno: p, r, σ_{DOV}

3D:



(72)

rameno o průřezu D×b a délce a

je pootočené o α vůči vodorovnému směru.

Hřídel má ⌀D a délku 2a

síla F působí svisle

U: průběh ~~[illegible]~~ VSÚ

průběh na plášti

průběh σekv

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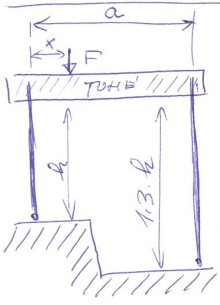
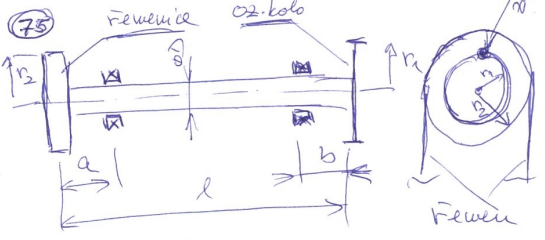
(73)



Stůl na dvou stejných nohách. Kde musí působit síla F, aby stůl nemusel nejvíc?

(74) stejné zadání jako (73), navíc je tam tělo desky na vzdálenosti a/2.

(75)



Dáno: otáčky, přenášený výkon, rozměry, materiál

Určete: namáhání, deformace