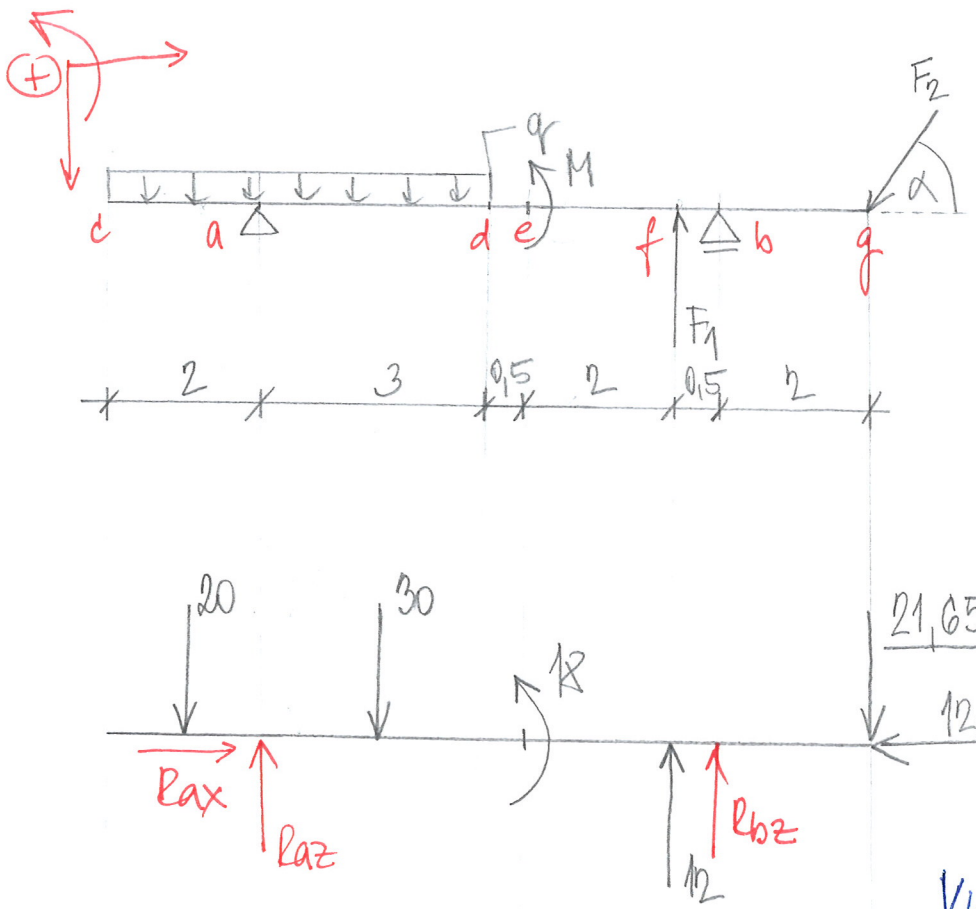
VZOROVÝ PŘÍKLAD

JMÉNO
STUD. SKUPINA
n =

Zadání:



$q = 10\ kN/m$

$M = 18\ kNm$

$F_1 = 12\ kN$

$F_2 = 25\ kN$

$\alpha = 60°$

21,651 (3 desetinná místa)

Výpočet reakcí

$\Sigma Fix = 0: \quad Rax + (-12,5) = 0$

$\sum_i Mia = 0:$

$20 \cdot 1 - 30 \cdot 1,5 + 18 + 12 \cdot 5,5 + + Rbz \cdot 6 - 21,651 \cdot 8 = 0$

$\sum_i Mib = 0:$

$20 \cdot 4 - Raz \cdot 6 + 30 \cdot 4,5 + 18 - - 12 \cdot 0,5 - 21,651 \cdot 2 = 0$

$\Rightarrow$

$Rax = 12,5\ kN (\rightarrow)$

$Rbz = 19,035\ kN (\uparrow)$

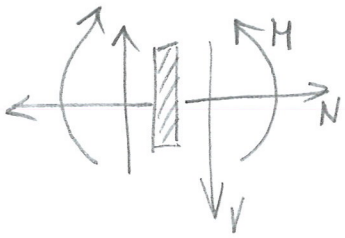
$Raz = 40,616\ kN (\uparrow)$

(*) kontrola

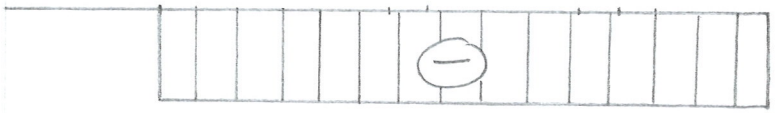
(*) kontrola

$\sum_i Fiz = 20 + 30 + 21,651 - 40,616 - 12 - 19,035 \doteq 0.$

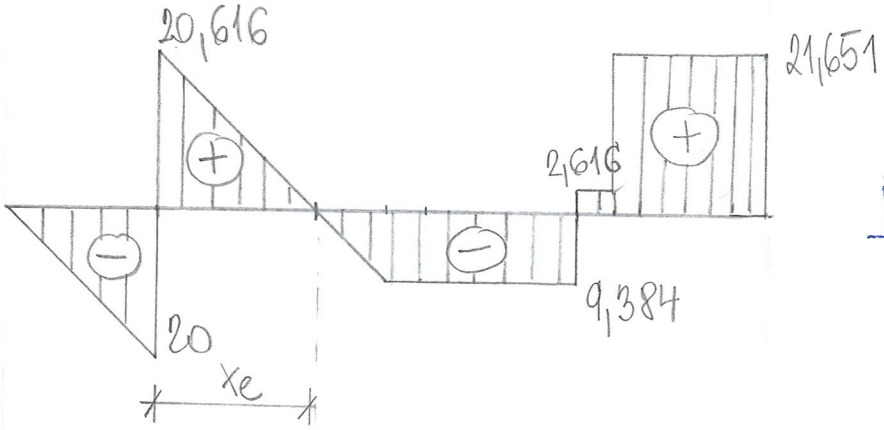
Vykreslení vnitřních sil:



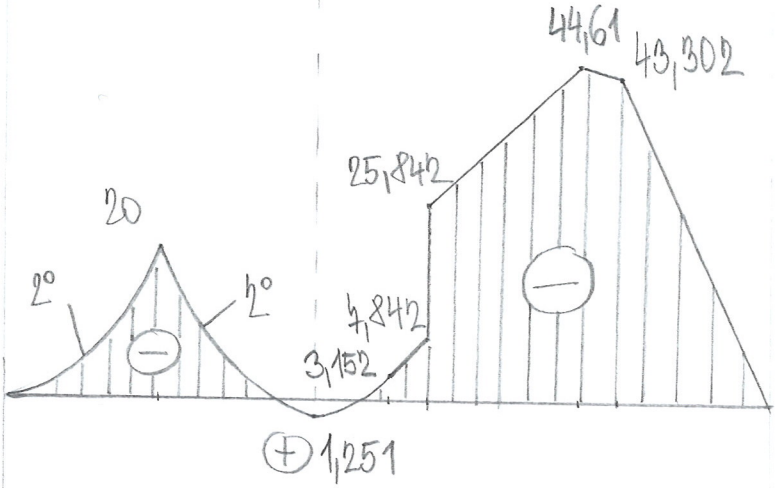
(N)



(V)



(M)



Výpočet nebezpečného průřezu:

$$x_e = \frac{V}{q} = \frac{20,616}{10} = 2,062\ m$$

$$M_{xe} = -20\,(1 + 2,062) + 40,616 \cdot 2,062 - 10 \cdot \frac{2,062^2}{2} =$$

$$= 1,251\ kNm$$