UNIVERSIDADE POSITIVO

CURSO: _____ TURNO: _____

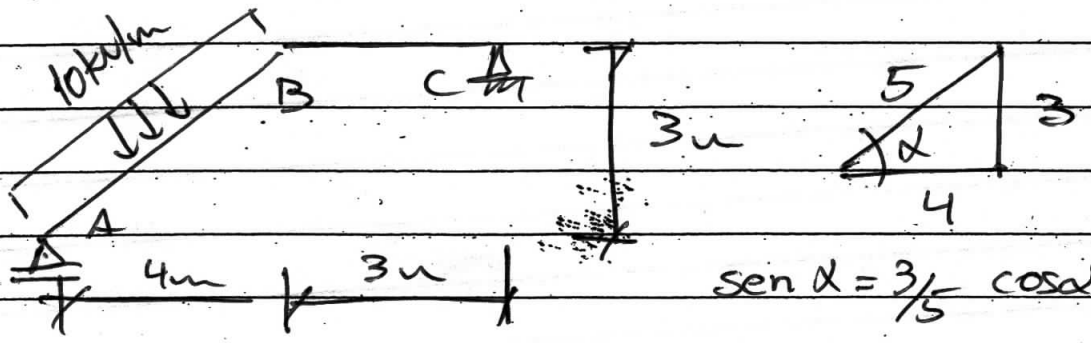
DISCIPLINA: _____

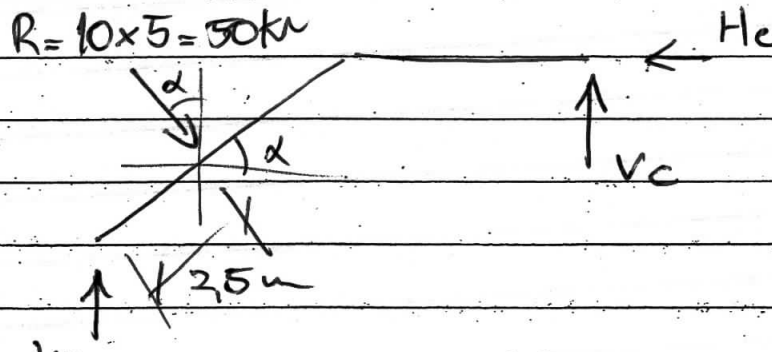
ALUNO(A): _____ Nº: _____

DATA: 06 / 03 / 2015

NOTA: _____ PROF(A): _____

TE15 - B1 - 1000 GABARITO





$\leftarrow +$

$\Sigma F_H = 0 \quad Hc - 50 \cdot \operatorname{sen}\alpha = 0$

$Hc = 50 \times 3/5 = 150/5 = 30kN \leftarrow$

$+ \circlearrowleft$

$\Sigma M_C = 0 \quad Hc \times 3m + Vc \times 7m - 50kN \times 2,5m = 0$

$Vc = 1/7 (-30 \times 3 + 50 \times 2,5)$

$\boxed{Vc = 3kN \uparrow}$

UNIVERSIDADE POSITIVO

CURSO: _____ TURNO: _____

DISCIPLINA: _____

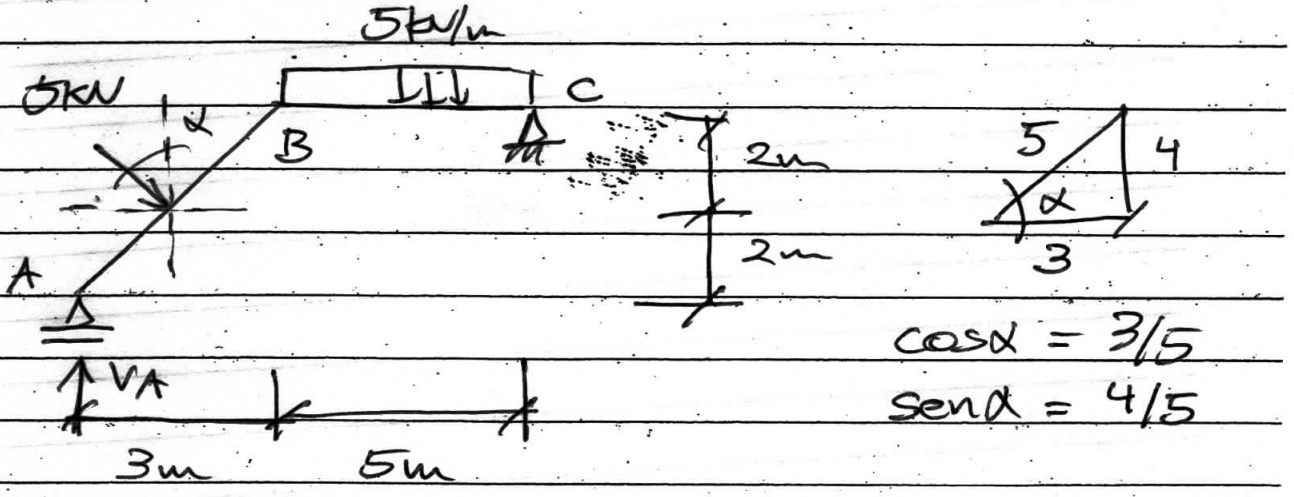
ALUNO(A): _____ Nº: _____

DATA: 26 / 03 / 2015.

NOTA: _____ PROF(A): _____

TEIS - B1 - 2000 // EXBARITO

Eq. $M_{BC}(x_1) = ?$



$\cos\alpha = 3/5$

$\text{sen}\alpha = 4/5$

$\Sigma M_C = 0 \curvearrowright \quad V_A \times 8 - 5\cos\alpha \times (5 + 3/2) - 5\,\text{sen}\alpha \times 2 - 5 \times 5 \times 5/2 = 0$

$V_A = \frac{1}{8}\left(5 \times \frac{3}{5} \times 6{,}5 + 5 \times \frac{4}{5} \times 2 + 25 \times 2{,}5\right) = 11{,}25\ \text{kN}$

$M_B = 11{,}25 \times 3\text{m} - 5 \times 2{,}5\text{m} = +21{,}25\ \text{kNm}$

$Q_B = 11{,}25 - 5 \times 3/5 = +8{,}25\ \text{kN}$

$$M_{BC}(x_1) = 21{,}25 + 8{,}25\,x_1 - 2{,}5\,x_1^2$$

UNIVERSIDADE POSITIVO

CURSO: _____ TURNO: _____

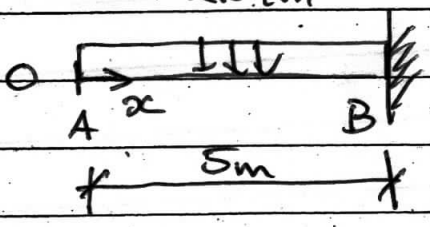
DISCIPLINA: _____

ALUNO(A): _____ Nº: _____

DATA: 01 / 04 / 2015.

NOTA: _____ PROF(A): _____

TE15 - B1 - 3000 GABARITO



$EJ = 20000\ kNm^2$

PEDE-SE: INCLINAÇÃO (ROTAÇÃO) DO PONTO A

$$M_{AB}(x) = -2x \cdot x/2 = -x^2$$

$$\theta_{AB}(x) = \frac{1}{EI}\int M_{AB}(x)\,dx = \frac{1}{EI}\left(-\frac{x^3}{3} + C\right)$$

$$\theta_{AB}(x=5) = 0 \rightsquigarrow -\frac{5^3}{3} + C = 0 \rightsquigarrow C = +\frac{125}{3} = 41{,}666$$

$$\theta_{AB}(x) = \frac{1}{20000}\left(-\frac{x^3}{3} + \frac{125}{3}\right)$$

$$\theta_{AB}(x=0) = \frac{1}{20000}\left(\frac{0^3}{3} + \frac{125}{3}\right) = \frac{125}{60000} = 0{,}0020833$$

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UNIVERSIDADE POSITIVO

CURSO: _____ TURNO: _____

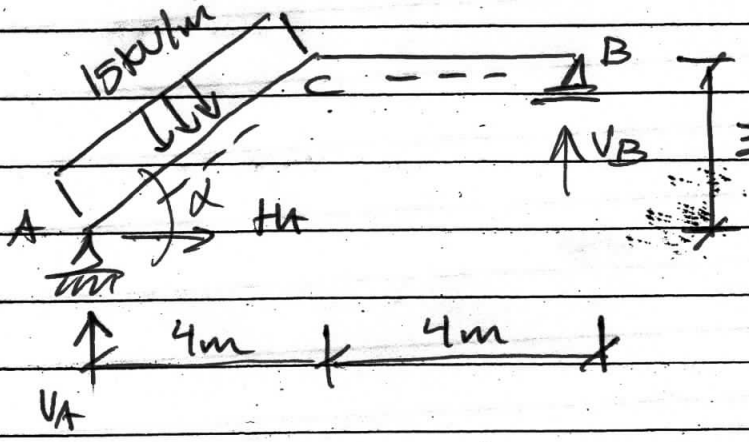
DISCIPLINA: _____

ALUNO(A): _____ Nº: _____

DATA: ___/___/___

NOTA: _____ PROF(A): _____

TEIO-B1-5000 GABARITO



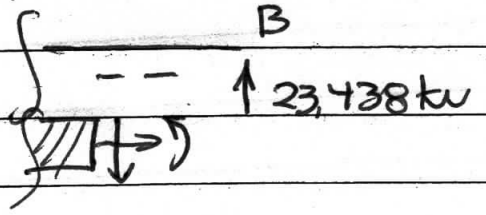
$\text{sen}\,\alpha = 3/5$

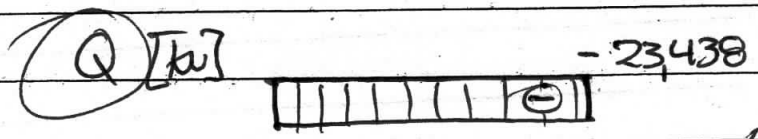
$\cos\alpha = 4/5$

* DIAGRAMA Q DO TRECHO CB

$\Sigma M_A = 0 \curvearrowleft \quad V_B \times 8m - 15kN/m \times 5m \times 2{,}5m = 0$

$V_B = 1/8(15 \times 5 \times 2{,}5) = 23{,}438\,kN \uparrow$





UNIVERSIDADE POSITIVO

CURSO: _____ TURNO: _____

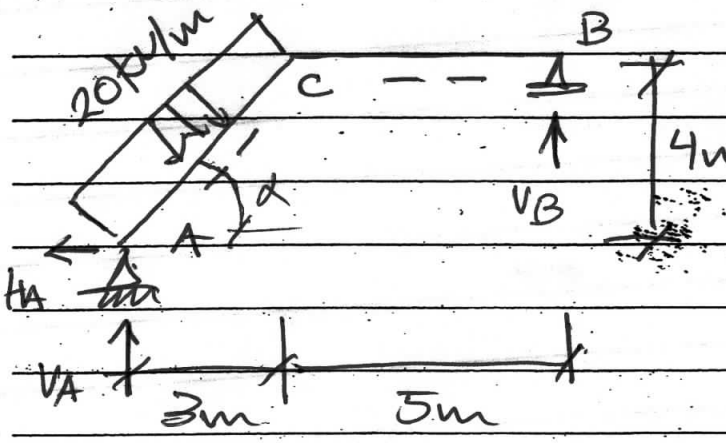
DISCIPLINA: _____

ALUNO(A): _____ Nº: _____

DATA: / / .

NOTA: _____ PROF(A): _____

TE15 - B1 - 5001 GABARITO



PEDE-SE DIAGRAMA Q DO TRECHO AC

$\cos\alpha = 3/5$

$\sin\alpha = 4/5$

$\Sigma M_A = 0$ ↺ $V_B \times 8m - 20kN/m \times (5m)^2/2 = 0$

$V_B = 1/8\,(10 \times 25) = 31{,}25\ kN\uparrow$

$\Sigma F_V = 0$ ↑ $V_A + V_B - 20kN/m \times 5m \times 3/5 = 0$

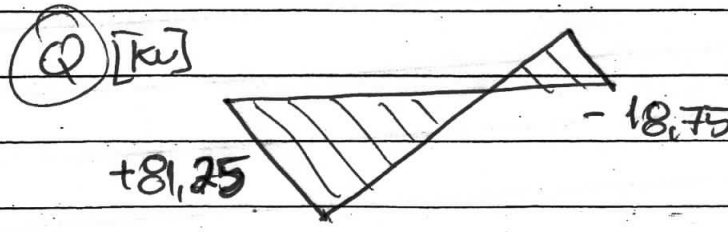
$V_A = 20 \times 3 - 31{,}25 = 28{,}75\ kN\uparrow$

$\Sigma F_H = 0$ → $20kN/m \times 5m \times 4/5 - H_A = 0$

$H_A = 80\ kN\leftarrow$

$Q_A = 28{,}75 \times 3/5 + 80 \times 4/5 = +81{,}25\ kN$

$Q_C = +81{,}25 - 20 \times 5m = -18{,}75\ kN$



UNIVERSIDADE POSITIVO

CURSO: _____ TURNO: _____

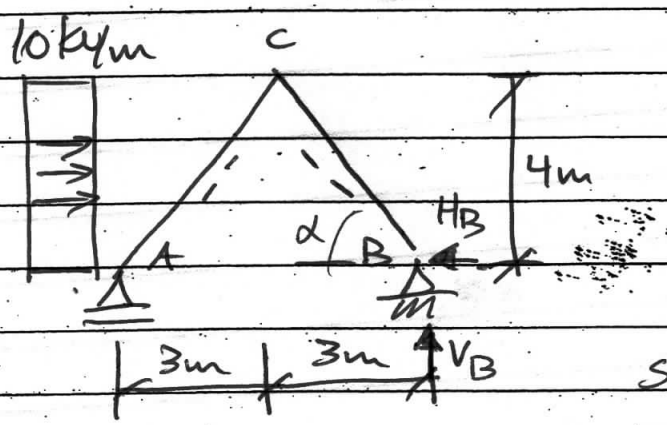
DISCIPLINA: _____

ALUNO(A): _____ Nº: _____

DATA: / - /

NOTA: _____ PROF(A): _____

TE15-B1-6000 GABARITO



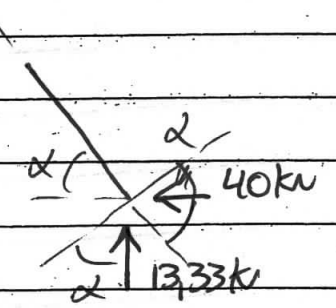
PEDE-SE:
O DIAGRAMA DE ESFORÇOS AXIAIS DO TRECHO BC

$\sin\alpha = 4/5 \quad \cos\alpha = 3/5$

$\Sigma F_H = 0 \rightarrow -H_B + 10kN/m \times 4m = 0 \quad H_B = 40kN \leftarrow$

$\Sigma M_A = 0 \circlearrowleft \quad V_B \times 6m - 10kN/m \times 4m \times 2m = 0$

$V_B = 1/6 (10 \times 4 \times 2) = 13{,}33\,kN \uparrow$



$N_B = -13{,}33 \times \sin\alpha - 40 \times \cos\alpha$

$N_B = -13{,}33 \times 4/5 - 40 \times 3/5$

$N_B = -34{,}66\,kN$

(N) [kN]

