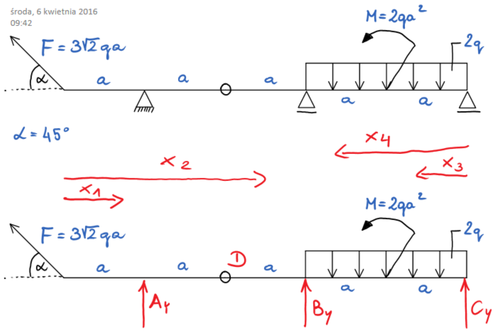
BELKA Z PRZEGUBEM

środa, 6 kwietnia 2016
09:42



$\alpha = 45°$

$A_y = -6qa$

$B_y = 7,5qa$

$C_y = -0,5qa$

$\Sigma M^{DL}: \quad F_y \cdot 2a + A_y \cdot a = 0$

$\Sigma M^{DP}: \quad -B_y \cdot a - C_y \cdot 3a - M + 4qa \cdot 2a = 0$

$\Sigma M^{B}: \quad F_y \cdot 3a + A_y \cdot 2a - M + 4qa \cdot a - C_y \cdot 2a = 0$

$A_y = -2F_y = -6qa$

$2aC_y = F_y \cdot 3a + A_y \cdot 2a - M + 4qa^2$

$2aC_y = 9qa^2 - 12qa^2 - 2qa^2 + 4qa^2$

$C_y = -\frac{1}{2} qa^2$

$B_y a = -C_y \cdot 3a - M + 8qa^2$

$B_y = 1,5qa - 2qa + 8qa$

$B_y = 7,5qa$

$Mg^{I} = F_y x_1 \qquad Mg^{I}(0) = 0 \qquad Mg^{I}(a) = 3qa^2$

$T^{I} = F_y = 3qa$

$Mg^{II} = F_y x_2 + A_y (x_2 - a) \qquad Mg^{II}(2a) = 3qa \cdot 2a - 6qa(2a - a) = 0$ zero w przegubie

$T^{II} = F_y + A_y = 3qa - 6qa = -3qa \qquad Mg^{II}(3a) = 9qa^2 - 12qa^2 = -3qa^2$

OD PRAWEJ

$Mg^{III} = C_y x_3 - 2q x_3 \frac{x_3}{2} \qquad Mg^{III}(0) = 0 \qquad Mg^{III}(a) = -0,5qa^2 - qa^2 = -1,5qa^2$

$T^{III} = -C_y + 2q x_3$ ← OD PRAWEJ STRONY LICZĄC TRZEBA ZMIENIĆ ZNAK POCHODNEJ NA PRZECIWNY

$T^{III}(0) = -C_y = 0,5qa \qquad T^{III}(a) = 0,5qa + 2qa = 2,5qa$

$Mg^{IV} = C_y x_4 - 2q x_4 \frac{x_4}{2} + M \qquad Mg^{IV}(a) = -0,5qa^2 - qa^2 + 2qa^2 = 0,5qa^2$

$Mg^{IV}(2a) = -qa^2 - 4qa^2 + 2qa^2 = -3qa^2$

$T^{IV} = -C_y + 2q x_4$

$T^{IV}(a) = 0,5qa + 2qa = 2,5qa \qquad T^{IV}(2a) = 0,5qa + 4qa = 4,5qa$