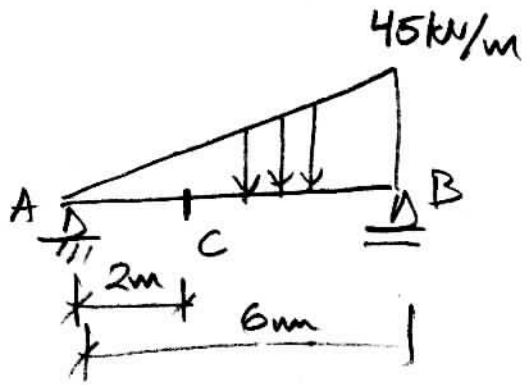
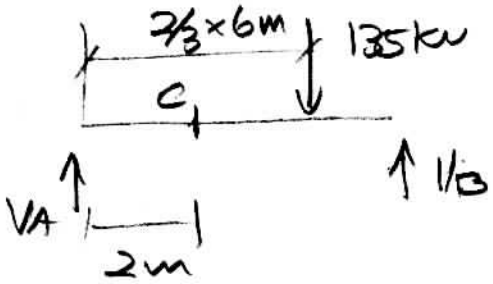
TE1-3.2



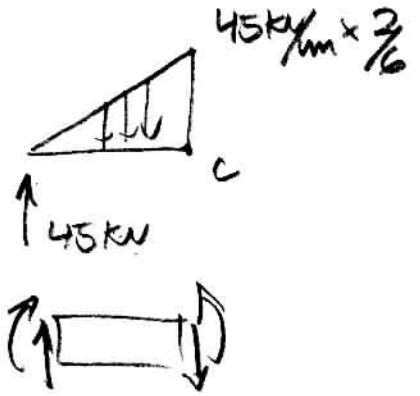
$R = 45\,kN/m \times 6m \times 1/2 = 135\,kN$



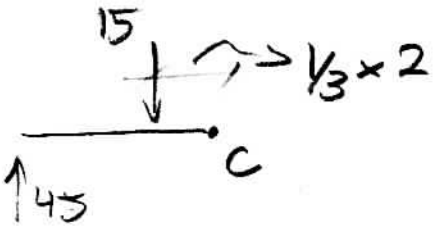
$\circlearrowright \oplus \sum M_A = 0 \quad 2/3 \times 6m \times 135kN - V_B \times 6m = 0$

$V_B = 1/6\,(2/3 \times 6 \times 135) = \underline{90\,kN}$

$\uparrow \sum F_V = 0 \quad -135 + 90 + V_A = 0 \quad V_A = 135 - 90 = \underline{45\,kN}$



$R' = 45 \times 2/6 \times 2 \times 1/2 = 15\,kN$



$M_C = 45 \times 2 - 15 \times 1/3 \times 2 = \underline{+80\,kNm}$ //

$Q_C = 45 - 15 = \underline{+30\,kN}$ //

↳ ALTERNATIVAMENTE:

$q(x) = 45/6\,x = 15/2\,x \quad 0 \to x$

$Q(x) = -\int q(x)\,dx = -15/2\,x^2/2 + C_1$

como $Q(x=0) = 45 \quad C_1 = 45$

$N(x) = \int Q(x)\,dx = -15/2\,x^3/6 + 45x + C_2$ como $N(x=0) = 0$

$C_2 = 0$

$M(x) = -\frac{15}{12}x^3 + 45x$

$M(x=2) = -\frac{15}{12} \times 2^3 + 45 \times 2 = \underline{80\,kNm}$ //

$Q(x) = -\frac{15}{4}x^2 + 45$

$Q(x=2) = -\frac{15}{4} \times 2^2 + 45 = \underline{30\,kN}$ //