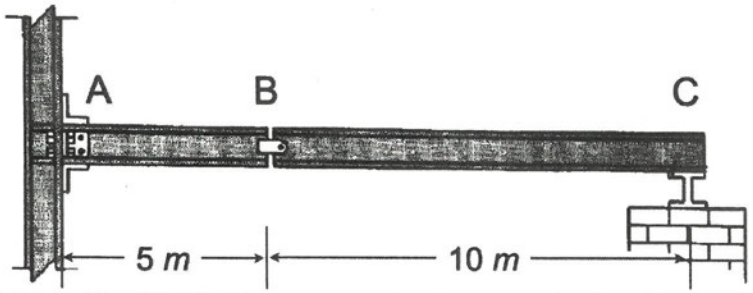
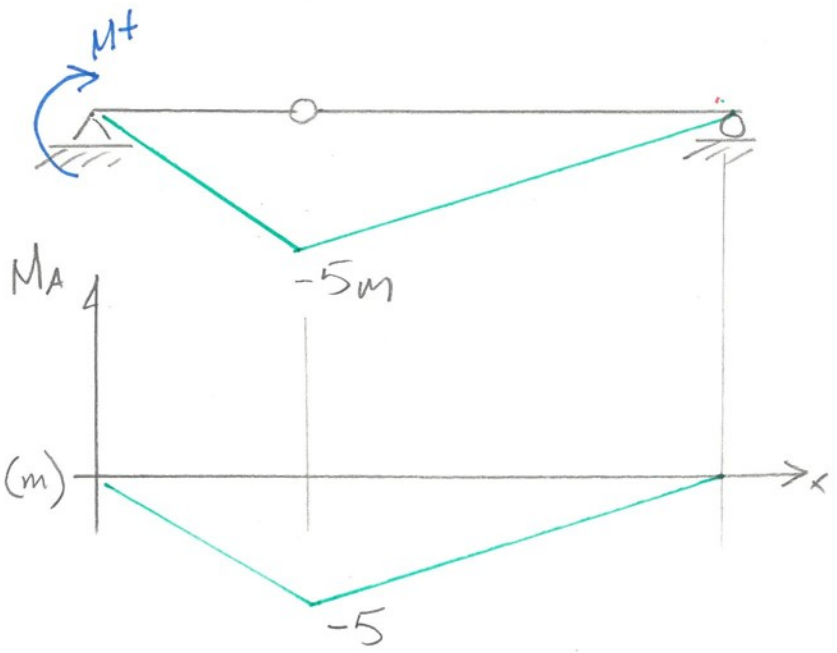
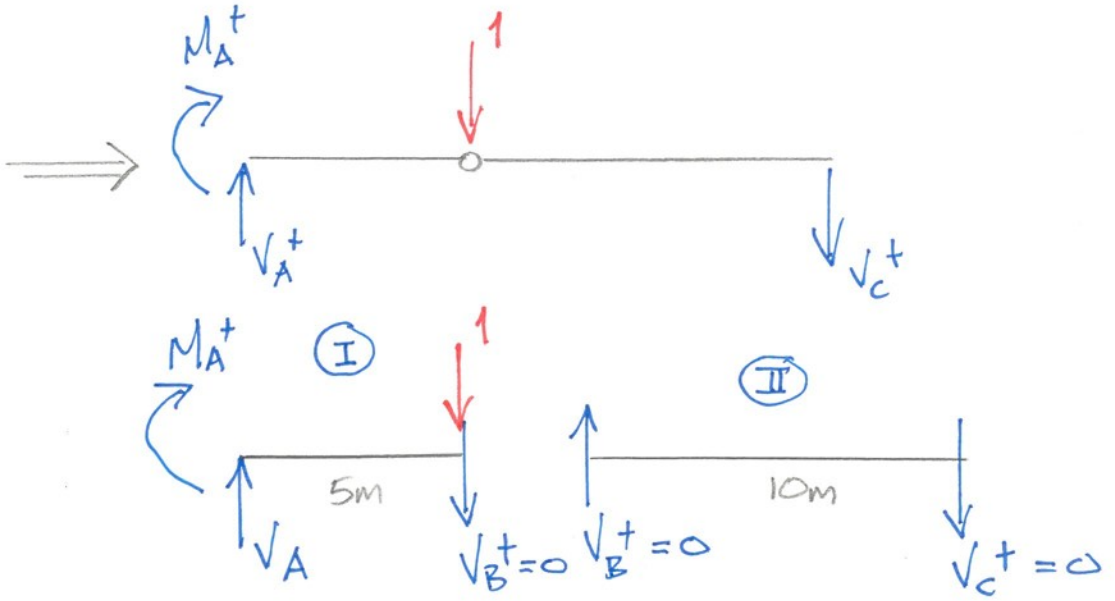
Example 6a-4: The beam below is subject to a dead load of 1.5 *kN/m* and a single live load of 10 *kN*. Determine the maximum ***negative*** moment created by these loads at point A and the maximum ***positive*** shear at point B.



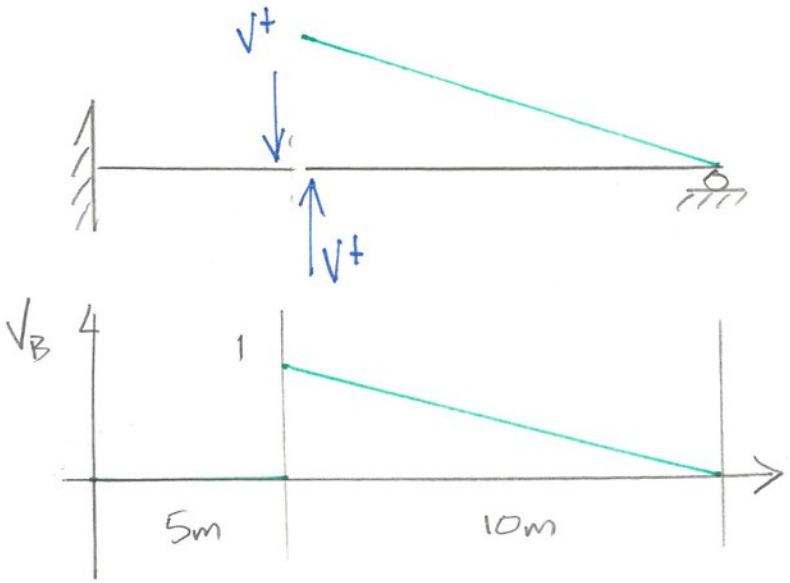




$\circlearrowleft + \Sigma M_A = 0 = -M_A - 1(5m)$ $\quad \underline{M_A = -5m}$

$$M_A = 10kN(-5m) + 1.5kN/m\left(\tfrac{1}{2}(15m)(-5m)\right)$$

$$= -50kNm + 56.25kNm = \underline{\underline{-106.25kNm}}$$



$$V_B = 1(10\,kN) + 1.5\,kN/\cancel{m}\left(\tfrac{1}{2}\right)(10\,\cancel{m})1$$

$$= 10\,kN + 7.5\,kN = \underline{\underline{17.5\,kN}}$$