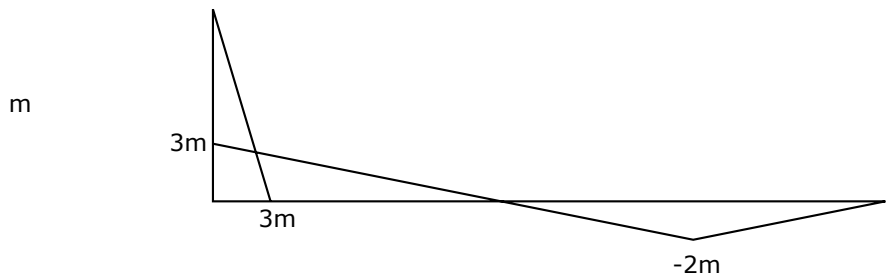
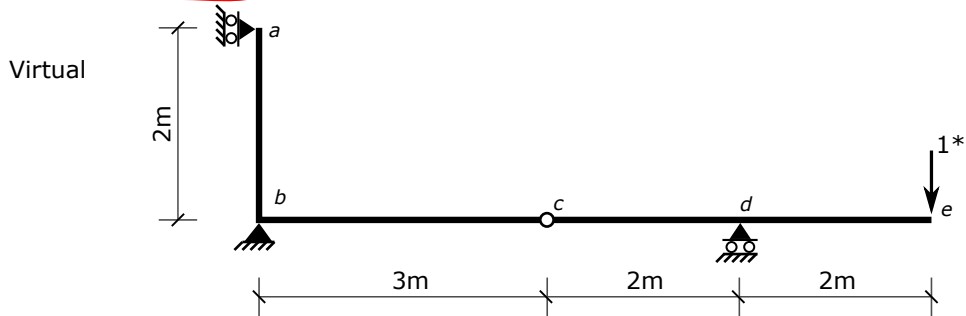
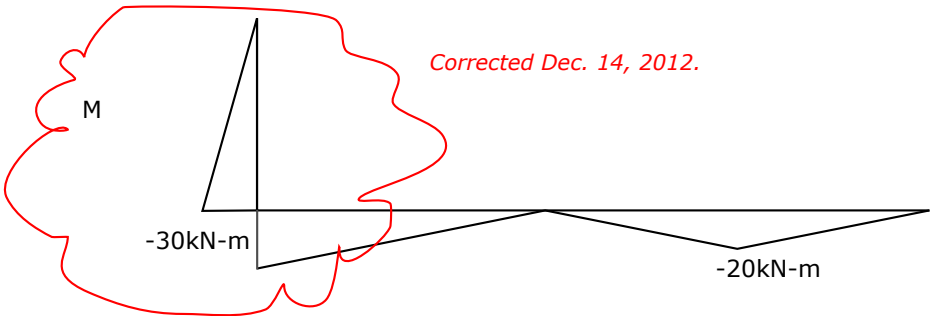
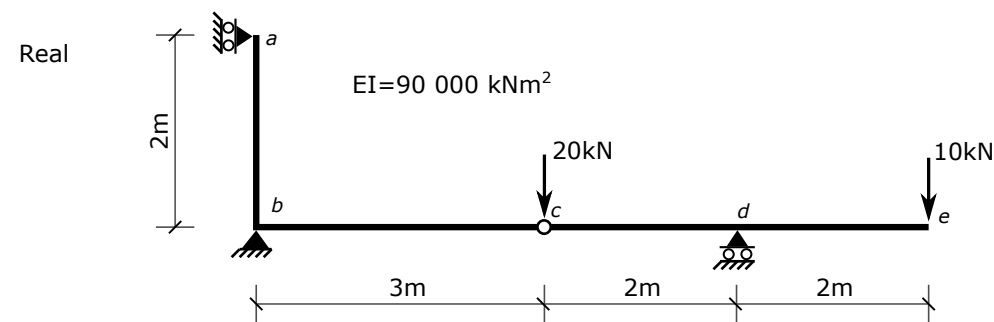


For vertical displacement of pt e:



$$EI_0\Delta_e = \int \frac{3m}{2m} \triangleleft \triangleleft_{-30kNm} + \int \frac{3m}{3m} \triangleleft \triangleleft_{-30kNm} + \int \frac{2m}{-2m} \triangleleft \triangleleft_{-20kNm} + \int \frac{2m}{-2m} \triangleleft \triangleleft_{-20kNm}$$
$$EI_0\Delta_e = \frac{2m}{3}(3m)(-30kNm) + \frac{3m}{3}(3m)(-30kNm) + \frac{2m}{3}(-2m)(-20kNm) + \frac{2m}{3}(-2m)(-20kNm)$$
$$EI_0\Delta_e = -96.67kNm^3$$
$$\Delta_e = -0.001074m = -1.074mm \quad (\therefore \uparrow)$$