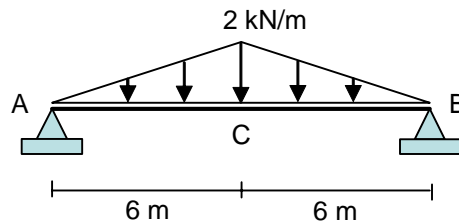
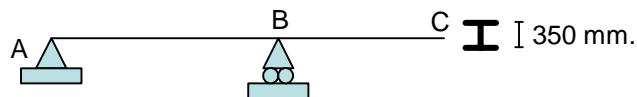


ASSIGNMENT # 7

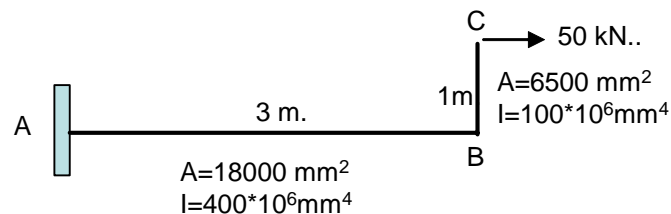
1. Determine the deflection of the center C of the wide-flange beam. Use the method of virtual work. $E=200$ GPa and $I=75(10^6)$ mm⁴



2. The top of the beam is subjected to a temperature of $T_t=200^\circ\text{C}$ while the temperature of its bottom is $T_b=30^\circ\text{C}$. If $\alpha=12(10^{-6})$, determine the vertical displacement of its end C due to the temperature gradient.



3. Determine the vertical deflection at C. The cross sectional area and the moment of inertia of each segment is shown in the figure. $E=200$ GPa.
- Use method of virtual work and include all effects
 - Use Castigliano's theorem



4. Repeat Prb1 of homework set#6 using the Castigliano's theorem