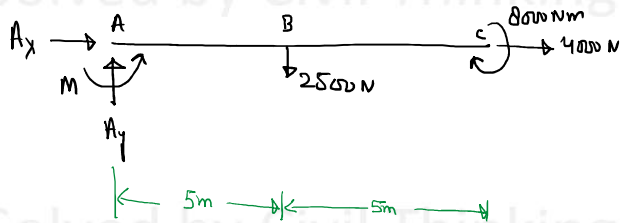
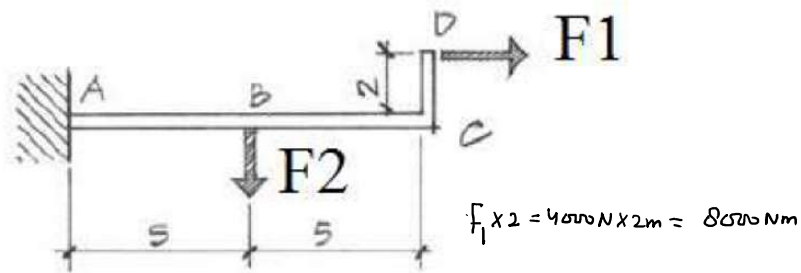


Load, Shear and Moment Diagrams:

2. For a cantilever beam with an upturned end, draw the load, shear, and moment diagrams. $F_1=4000\text{N}$, $F_2=2500\text{N}$.



$$\sum M_A = 0:$$

$$-8000 - (2500 \times 5\text{m}) + M = 0$$

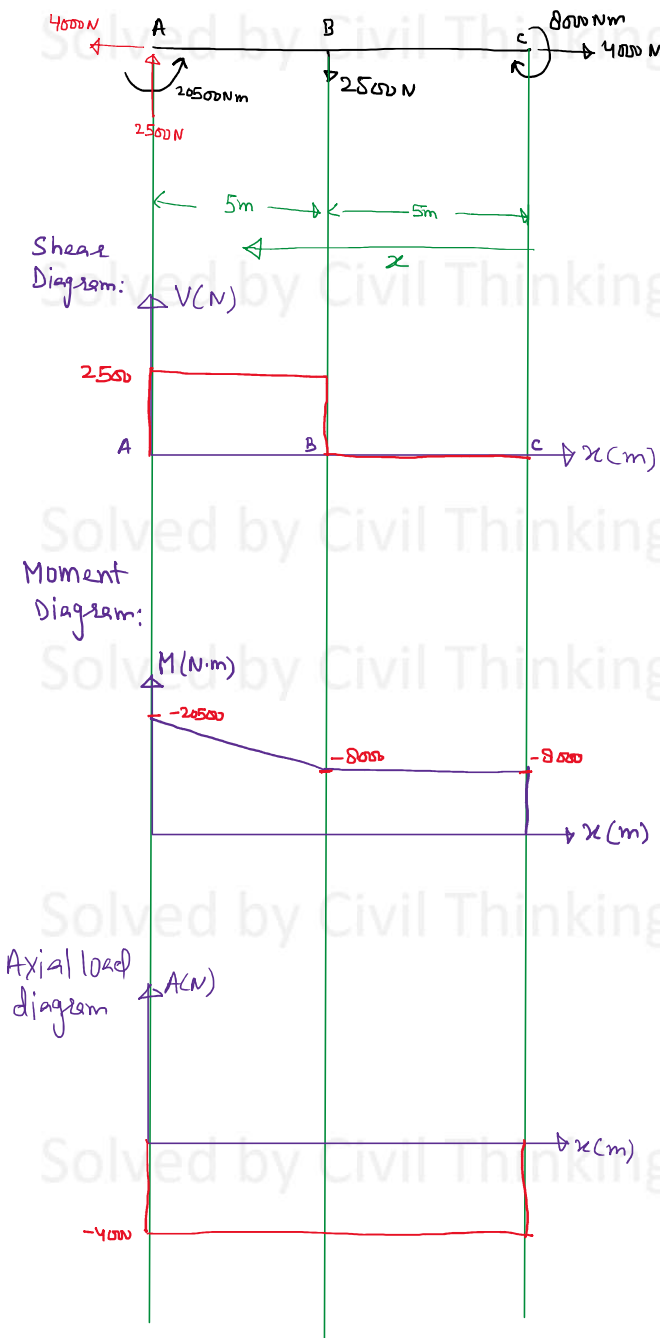
$$\Rightarrow M = 8000\text{Nm} + 2500 \times 5\text{N}\cdot\text{m} = 20500\text{Nm}$$

$$\sum F_y = 0:$$

$$A_y - 2500\text{N} = 0 \Rightarrow A_y = 2500\text{N}$$

$$\sum F_x = 0:$$

$$A_x + 4000\text{N} = 0 \Rightarrow A_x = -4000\text{N} = 4000\text{N} (\leftarrow)$$



Shear force, V at different points (\uparrow):

$$\rightarrow V_A = 2500\text{ N}$$

$$\rightarrow V_B = 2500 - 2500 = 0$$

$$\rightarrow V_C = 0$$

Moment, M at different points (\curvearrowright):

$$\rightarrow M_C = -8000\text{ Nm}$$

$$\rightarrow M_B = -8000\text{ Nm}$$

$$\rightarrow M_A = -8000\text{ Nm} - (2500\text{ N} \times 5\text{ m}) = -20500\text{ Nm}$$

This problem was solved by Civil Thinking (<https://civilthinking.com>)

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