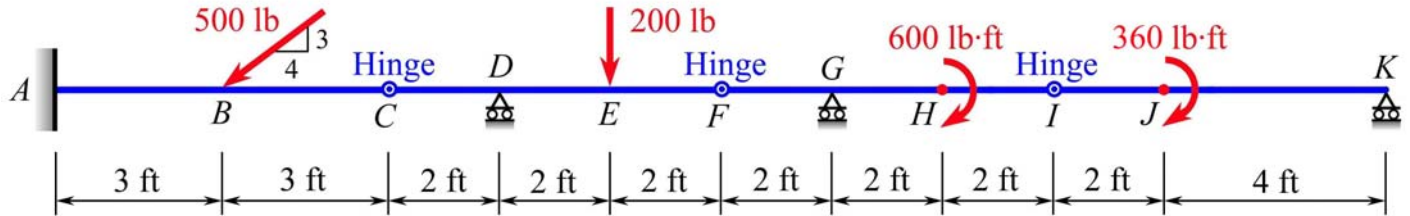
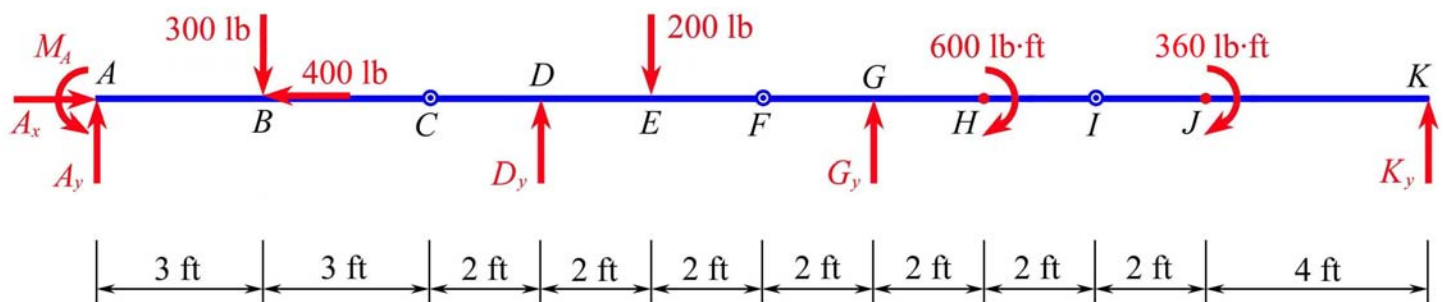


Quiz #10. Using the virtual work method, determine the reaction moment M_A at the fixed support A of the *Gerber beam* shown.

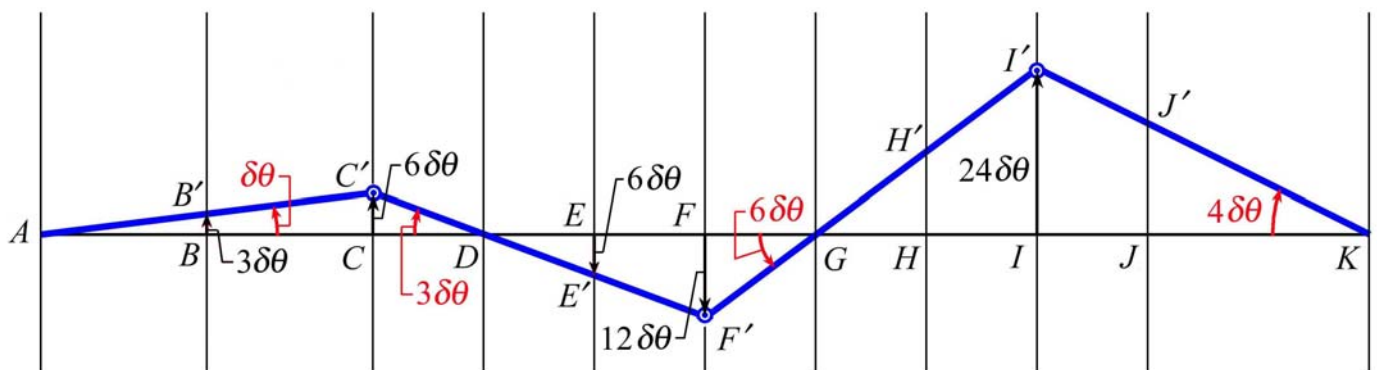


Solution.

Step 1: We draw the *FBD* for the beam.



Step 2: We draw the *VDD* for the beam with a **strategy** to involve M_A in the total virtual work done.



Step 3: We set $\delta U = 0$.

$$M_A (\delta\theta) + 300(-3\delta\theta) + 200(6\delta\theta) + 600(-6\delta\theta) + 360(4\delta\theta) = 0$$

$$M_A = 1860$$

$$\mathbf{M_A = 1860 \text{ lb}\cdot\text{ft} \curvearrowright}$$