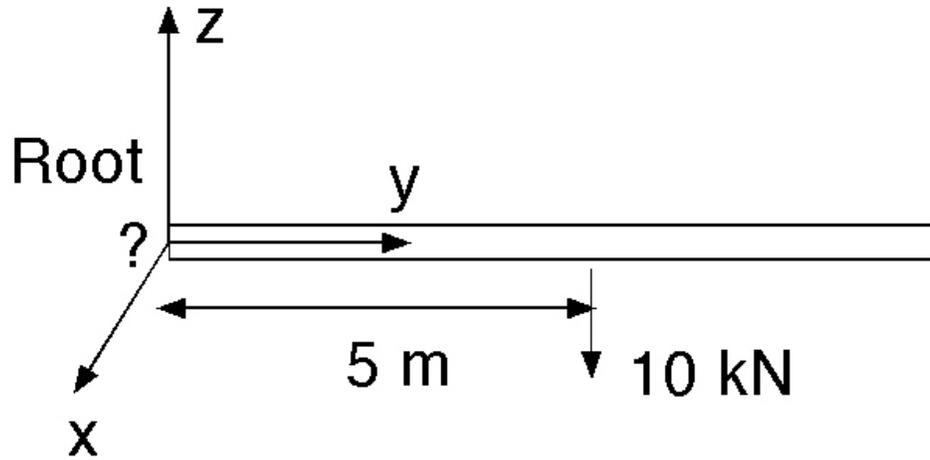


M3 CQ1 For the following model of a wing loaded by the weight of an engine (10 kN) what forces and moments must be applied at its root to keep it in equilibrium?



1.

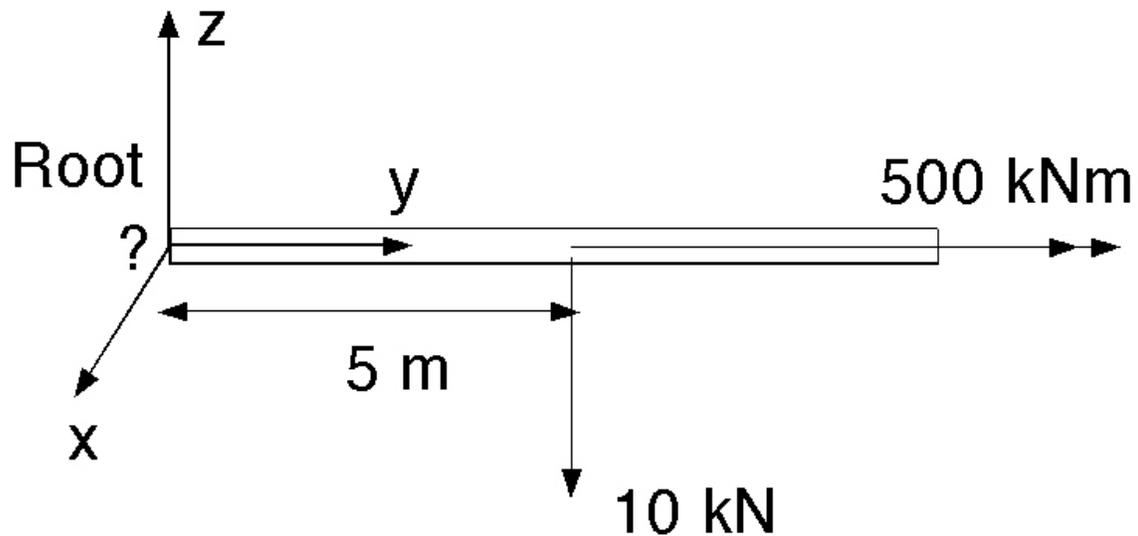
$$\underline{M} = \begin{pmatrix} 50 \\ 0 \\ 0 \end{pmatrix} \text{ kNm} \quad 2. \quad \underline{R} = \begin{pmatrix} 0 \\ 0 \\ 10 \end{pmatrix} \text{ kN}$$

$$3. \quad \underline{R} = \begin{pmatrix} 0 \\ 0 \\ 10 \end{pmatrix} \text{ kN}, \quad \underline{M} = \begin{pmatrix} 50 \\ 0 \\ 0 \end{pmatrix} \text{ kNm}$$

$$4. \quad \underline{R} = \begin{pmatrix} 0 \\ 0 \\ 10 \end{pmatrix} \text{ kN}, \quad \underline{M} = \begin{pmatrix} -50 \\ 0 \\ 0 \end{pmatrix} \text{ kNm}$$

5. Some other answer. 6. Do not know/ understand

M3 CQ2 If in addition a moment of 500 kNm acts along the length of the wing what forces and moments must be applied at its root to keep it in equilibrium?



1. $\underline{M} = \begin{pmatrix} 50 \\ -500 \\ 0 \end{pmatrix} \text{ kNm}$ 2. $\underline{R} = \begin{pmatrix} 0 \\ 0 \\ 10 \end{pmatrix} \text{ kN}$

3. $\underline{R} = \begin{pmatrix} 0 \\ 0 \\ 10 \end{pmatrix} \text{ kN}$, $\underline{M} = \begin{pmatrix} -50 \\ -500 \\ 0 \end{pmatrix} \text{ kNm}$

4. $\underline{R} = \begin{pmatrix} 100 \\ 0 \\ 10 \end{pmatrix} \text{ kN}$, $\underline{M} = \begin{pmatrix} -50 \\ -500 \\ 0 \end{pmatrix} \text{ kNm}$

5. Some other answer. 6. Do not know/ understand