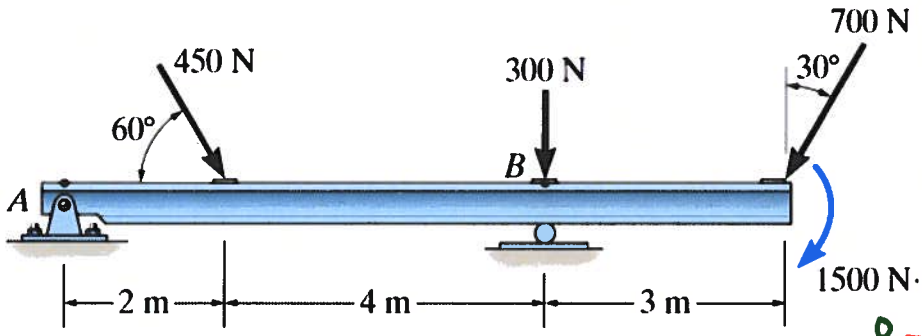
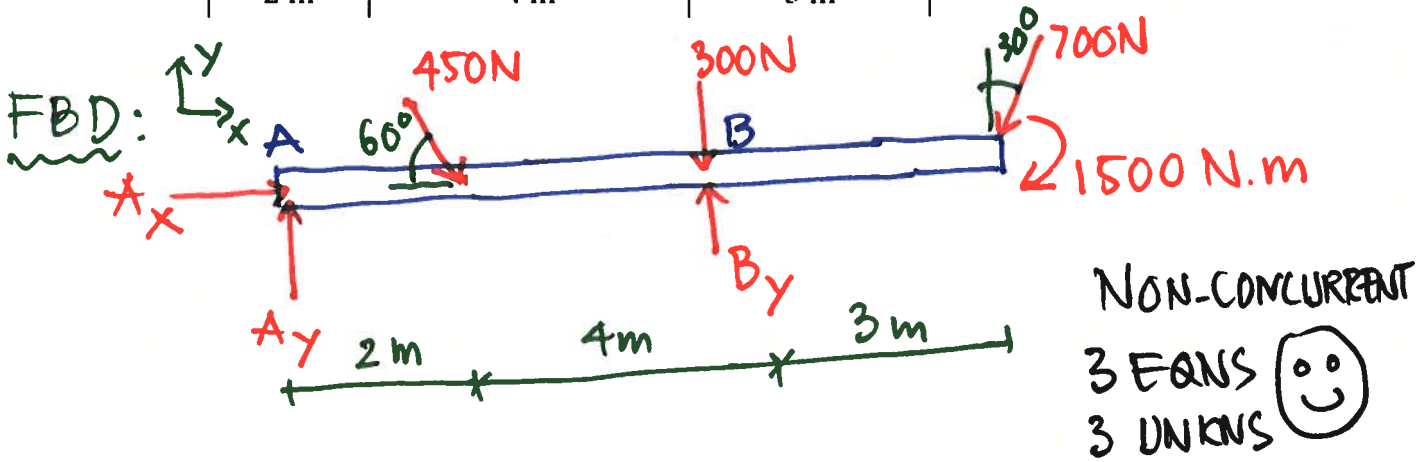
2D Equilibrium of a Body

Determine the reactions at the pin A and roller B on the beam AB.





$$\circlearrowleft \sum M_A = 0 = -(450\sin 60^\circ)(2^m) + B_y(6^m) - 300(6^m) - (700\cos 30^\circ)(9^m) - 1500$$

$$\Rightarrow B_y = 1589\ \text{N} \uparrow \quad \text{ANS.}$$

$$\rightarrow \sum F_x = 0 = A_x + 450\cos 60^\circ - 700\sin 30^\circ$$

$$\Rightarrow A_x = 125.0\ \text{N} \rightarrow \quad \text{ANS.}$$

$$\uparrow \sum F_y = 0 = A_y - 450\sin 60^\circ - 300 + B_y - 700\cos 30^\circ \quad (B_y = 1589\ \text{N})$$

$$\Rightarrow A_y = -293\ \text{N} \Rightarrow A_y = 293\ \text{N} \downarrow \quad \text{ANS.}$$