Question 2:
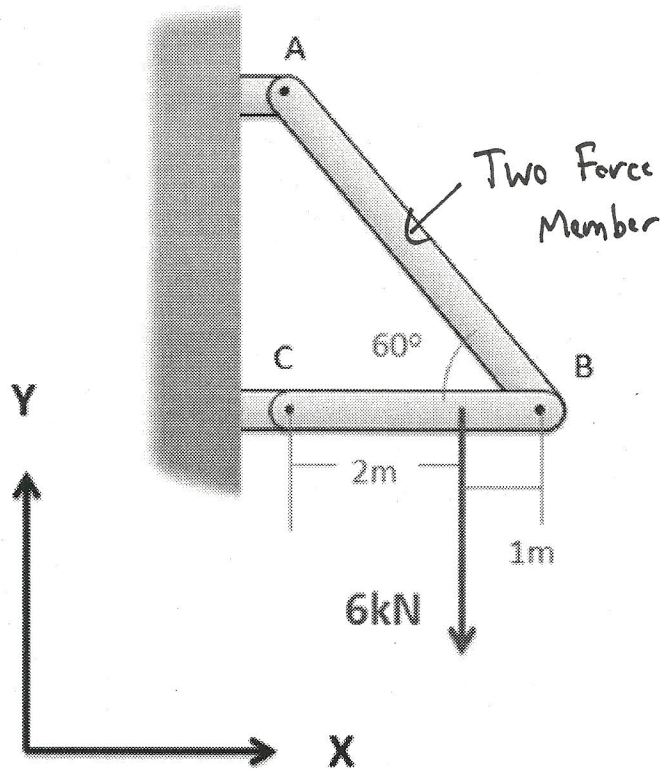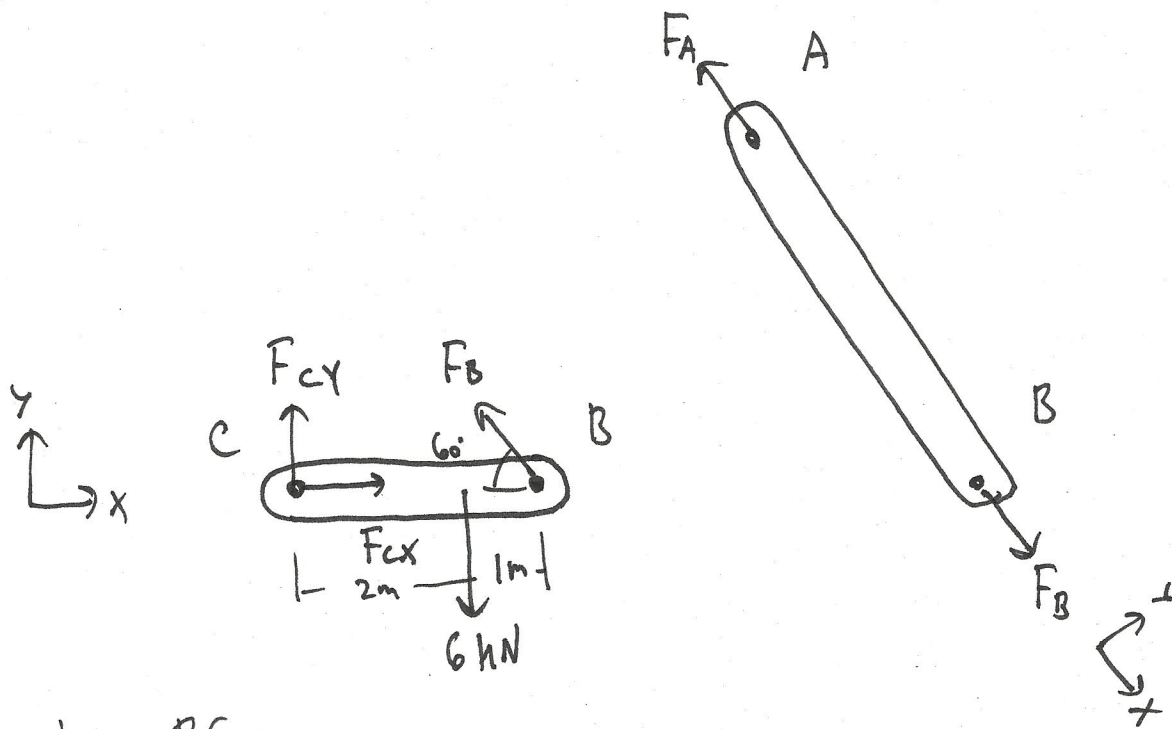
Find all the forces acting on each of the members in the structure below.

Calculations:

Not independently rigid. Start by breaking into components.

Member BC

$$\Sigma F_x = F_{cx} - \cos(60) F_B = 0$$

$$\Sigma F_y = F_{cy} + \sin(60) F_B - 6 = 0$$

$$\Sigma M_c = -(2)(6) + (3\sin(60))(F_B) = 0$$

$$F_B = \frac{(2)(6)}{3\sin(60)} = 4.6 \; hN$$

$$F_{cx} = \cos(60)(4.6) = 2.3 \; hN$$

$$F_{cy} = 6 - \sin(60)(4.6) = 2 \; hN$$

Member AB

$$\Sigma F_x = -F_A + (4.6) = 0$$

$$F_A = 4.6 \text{ hN}$$

Solution: