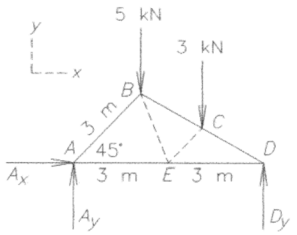
4/7



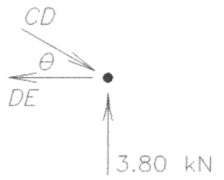
As a whole:

Note: $\overline{CE} = 1.5$ m by similar triangles

$$\Sigma M_A = 0: \; 5(3\cos 45°) + 3(3 + 1.5\cos 45°) - 6D_y = 0$$

$$D_y = 3.80 \text{ kN}$$

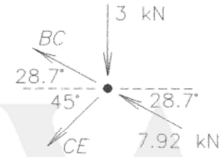
Joint D:



$$\theta = \tan^{-1}\frac{3\sin 45°}{6 - 3\cos 45°} = 28.7°$$

$$\begin{cases} \Sigma F_y = 0: \; 3.80 - CD\sin 28.7° = 0, \; CD = 7.92 \text{ kN } C \\ \Sigma F_x = 0: \; 7.92\cos 28.7° - DE = 0, \; DE = 6.94 \text{ kN } T \end{cases}$$

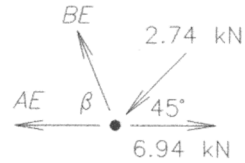
Joint C:



$$\begin{cases} \Sigma F_x = 0: \; -BC\cos 28.7° - CE\cos 45° - 7.92\cos 28.7° = 0 \\ \Sigma F_y = 0: \; BC\sin 28.7° - CE\sin 45° + 7.92\sin 28.7° - 3 = 0 \end{cases}$$

Solve simultaneously to obtain: $\underline{BC = -5.70 \text{ kN } (C)}$, $\underline{CE = -2.74 \text{ kN } (C)}$

Joint E:



$$\beta = \frac{180° - 45°}{2} = 67.5°$$

$$\Sigma F_y = 0: \; BE\sin 67.5° - 2.74\sin 45° = 0$$

$$\underline{BE = 2.10 \text{ kN } T}$$