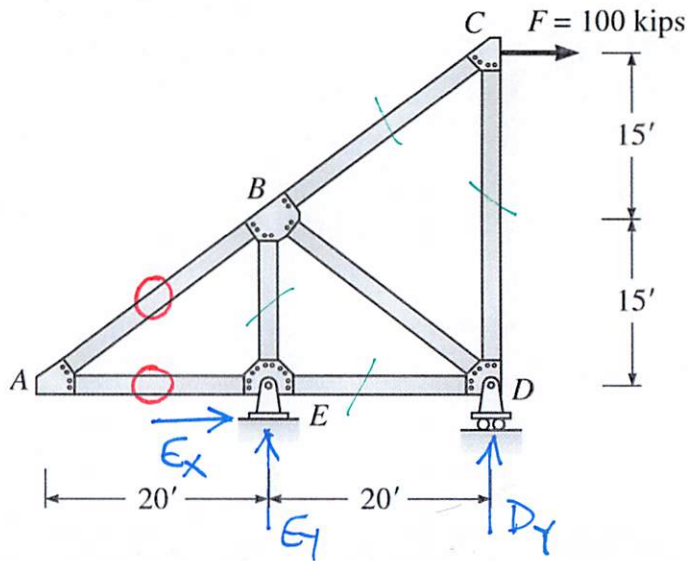


Example 3b-3. Determine all the forces in the following truss.



$$\sum M_E = 0 = -100^k(30') + D_y(20') \quad \underline{D_y = 150^k}$$

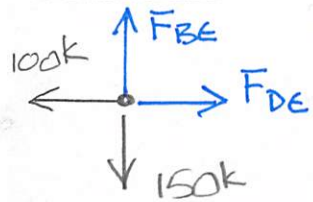
$$\sum F_y = 0 = E_y + D_y \quad \underline{E_y = -150^k}$$

$$\sum F_x = 0 = E_x + 100^k \quad \underline{E_x = -100^k}$$

ZERO-FORCE MEMBERS

CASE 1: $F_{AE} = F_{AB} = 0$

JOINT E



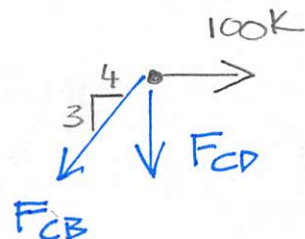
$$\sum F_y = 0 = F_{BE} - 150^k$$

$$\underline{F_{BE} = 150^k}$$

$$\sum F_x = 0 = F_{DE} - 100^k$$

$$\underline{F_{DE} = 100^k}$$

JOINT C



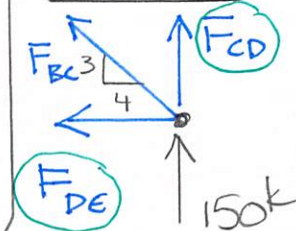
$$\sum F_x = 0 = -\frac{4}{5}F_{CB} + 100^k$$

$$\underline{F_{CB} = 125^k}$$

$$\sum F_y = 0 = -\frac{3}{5}F_{CB} - F_{CD}$$

$$\underline{F_{CD} = -75^k}$$

JOINT D



$$\sum F_x = 0 = -F_{DE} - \frac{4}{5}F_{BC}$$

$$\underline{F_{BC} = -125^k}$$