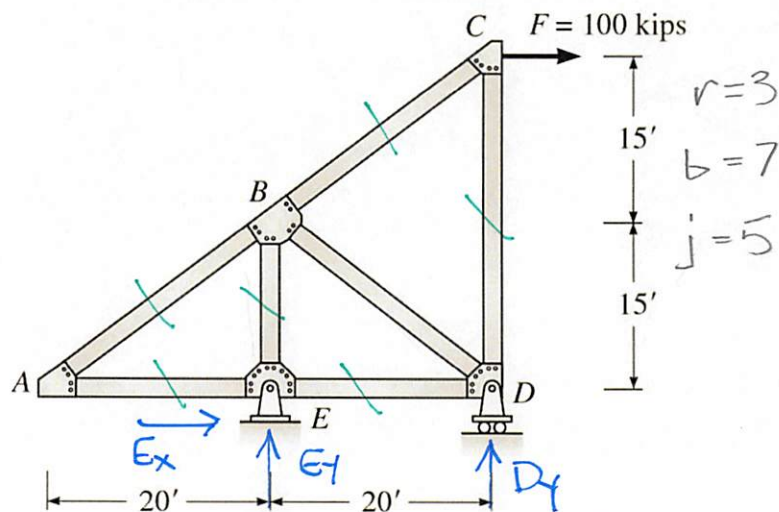


Example 3b-3. Determine all the forces in the following truss.



$$\sum M_E = 0 = -100k(30') + D_y(20')$$

$$\underline{D_y = 150k}$$

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

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

ZERO-FORCE MEMBERS
CASE I: $F_{AB} = F_{AC} = 0$

JOINT C

$$+\rightarrow \sum F_x = 0$$

$$= -\frac{4}{5} F_{BC} + 100k$$

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

$$+\uparrow \sum F_y = 0$$

$$= -F_{CD} - \frac{3}{5} F_{BC}$$

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

JOINT E

$$+\uparrow \sum F_y = 0$$

$$= F_{BE} - 150k$$

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

$$+\rightarrow \sum F_x = 0$$

$$= F_{DE} - 100k$$

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

JOINT D

$$+\rightarrow \sum F_x = 0$$

$$= -F_{DE} - \frac{4}{5} F_{BD}$$

$$\underline{F_{BD} = -125k}$$