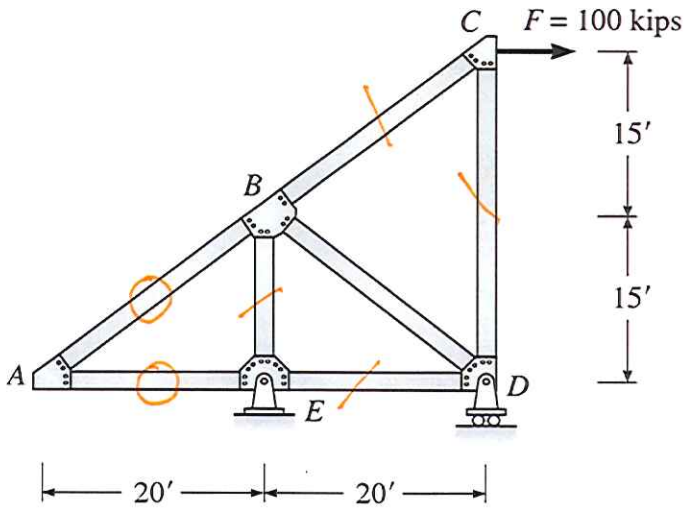
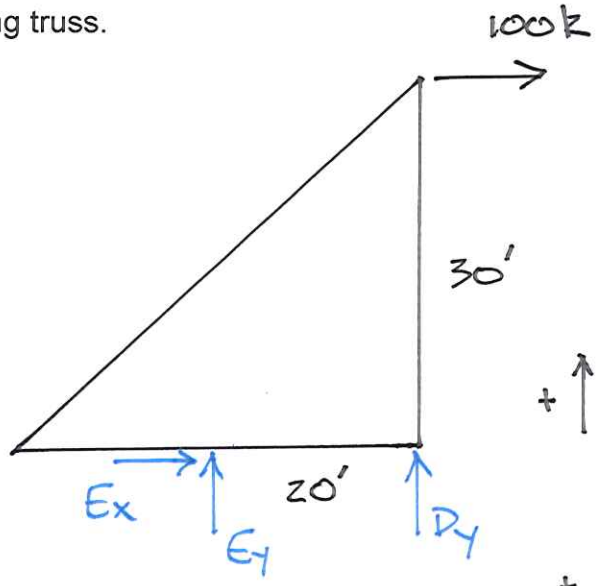
Example 3-3. Determine all the forces in the following truss.





$\circlearrowleft + \sum M_E = 0$

$= D_y(20') - 100^k(30')$

$D_y = 150^k$

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

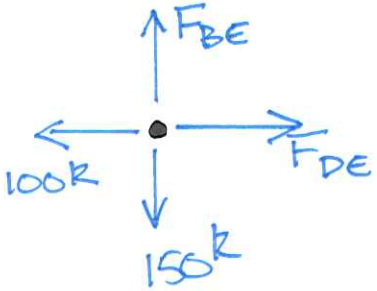
$E_y = -D_y = -150^k$

$\overset{+}{\rightarrow} \sum F_x = 0 = E_x + 100^k$

$E_x = -100^k$

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

JOINT E



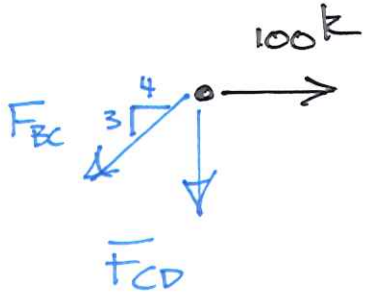
$+\uparrow \sum F_y = 0 = F_{BE} - 150^k$

$F_{BE} = 150^k$

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

$F_{DE} = 100^k$

JOINT C



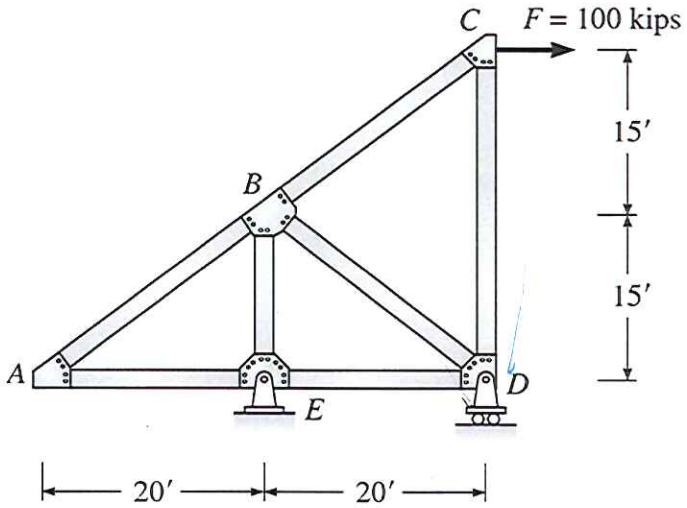
$\overset{+}{\rightarrow} \sum F_x = 0 = -\frac{4}{5} F_{BC} + 100^k$

$F_{BC} = 125^k$

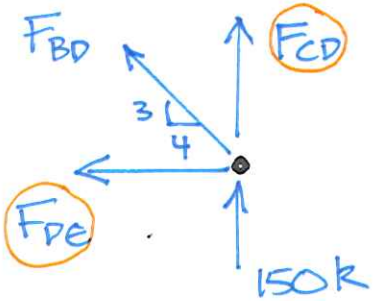
$+\uparrow \sum F_y = 0 = -\frac{3}{5} F_{BC} - F_{CD}$

$F_{CD} = -75^k$

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



JOINT D



$$\xrightarrow{+}\sum F_x = 0 = -F_{DE} - \frac{4}{5}F_{BD}$$

$$F_{BD} = -125^{k}$$