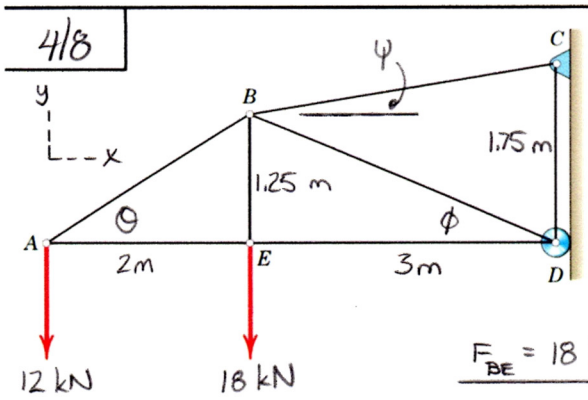
4/8



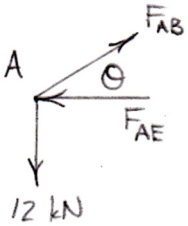
$\theta = \tan^{-1}\left(\frac{1.25}{2}\right) = 32.0^\circ$

$\phi = \tan^{-1}\left(\frac{1.25}{3}\right) = 22.6^\circ$

$\psi = \tan^{-1}\left(\frac{0.5}{3}\right) = 9.46^\circ$

$F_{BE} = 18\ \text{kN T}$ (INSPECTION)

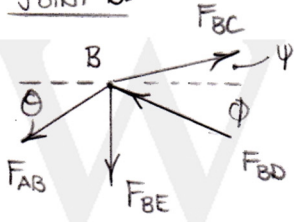
JOINT A:



$$\begin{cases} \Sigma F_y = 0: & F_{AB}\sin\theta - 12 = 0 \\ \Sigma F_x = 0: & F_{AB}\cos\theta - F_{AE} = 0 \end{cases} \rightarrow \begin{cases} F_{AB} = 22.6\ \text{kN T} \\ F_{AE} = 19.20\ \text{kN C} \end{cases}$$

$F_{DE} = 19.20\text{kN C}$ (INSPECTION)

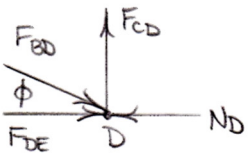
JOINT B:



$$\begin{cases} \Sigma F_x = 0: & F_{BC}\cos\psi - F_{BD}\cos\phi - F_{AB}\cos\theta = 0 \\ \Sigma F_y = 0: & F_{BC}\sin\psi + F_{BD}\sin\phi - F_{BE} - F_{AB}\sin\theta = 0 \end{cases}$$

$F_{BC} = 66.0\ \text{kN T}$ & $F_{BD} = 49.8\ \text{kN C}$

JOINT D:



$\Sigma F_y = 0: \quad F_{CD} - F_{BD}\sin\phi = 0$

$F_{CD} = 19.14\ \text{kN T}$