NOTE:  ① 90N loads are vertical  
② $\mathbf{T}_{BD}$ pulls at both pt. B and pt. D with same tension

**SELECT MEMBER AB FOR ANALYSIS.**

**F.B.D.**

$\theta = \tan^{-1} \left( \frac{1}{1.15} \right) = 33.69^\circ$

$T_{BD_x} = -T_{BD} \cos 33.7^\circ$

$T_{BD_x} = -0.83T_{BD}$

$T_{BD_y} = +T_{BD} \sin 33.7^\circ$

$T_{BD_y} = 0.55T_{BD}$

$\sum F_x = 0 = R_{AX} - T_{BD_x}$ \quad $\therefore R_{AX} = 0.83T_{BD}$

$\sum F_y = 0 = R_{AY} - 90N - 90N + T_{BD_y}$

Since you know the direction of $\mathbf{T}_{BD}$, solve for moments about pt. A.

$\sum M_A = 0 = (90N \times 1m) + (90N \times 2m) - (T_{BD_y} \times 3m) + (T_{BD_x} \times 1m)$

$27N\cdot m = (0.55T_{BD} \times 3m) - (0.83T_{BD} \times 1m)$

$27 = 0.082T_{BD}$ \quad $\therefore T_{BD} = 329.3 \text{ N}$

Therefore, $R_{AX} = 0.83(329.3 \text{ N}) = 273.3 \text{ N}$.

$R_{AY} = 180N - 0.55(329.3 \text{ N}) = -1.12 \text{ N}$ \quad **OPP. DIR.**

$R_A = \sqrt{(273.3)^2 + (1.12)^2} = 273.3 \text{ N}$.

$\theta = \tan^{-1} \left( \frac{-1.12}{273.3} \right) = -0.2^\circ \quad **\text{IGNORE}**$