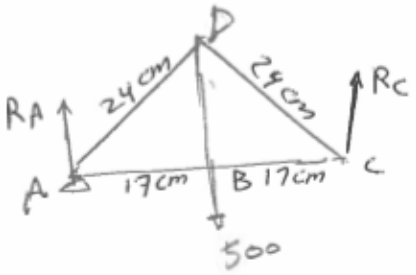
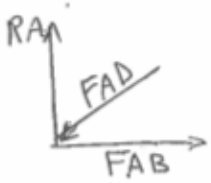
Project group H-W-500 Load.



$R_A = 250\ N$

$R_C = 250\ N$

Joint A



$F_{ADX} = -R_A$

$F_{ADX} = -250\ N$

$F_{ADX} = -F_{AD}\cos 45^\circ$

$F_{AD} = -\frac{(-250\ N)}{\cos 45^\circ} = 353.5$

$= 353.6$

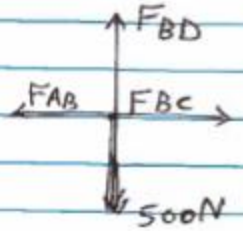
$F_{ADy} = -F_{AD}\sin 45^\circ$

$F_{ADy} = -353.6 \sin 45^\circ = -250\ N$

$F_{AD} = 353.6\ N\ (C)$

$F_{AB} = 250\ N\ (T)$

Joint B



$F_{BC} = 250\,N\,(T)$

$F_{BD} = 500\,N\,(T)$

$F_{CD} = F_{AD}$ by symmetry

$F_{CD} = 353.6\,N\,(C)$

$F_1 = F_{AB} = \frac{LOAD}{2}$

$F_2 = F_{BC} = \frac{LOAD}{2}$

$F_3 = F_{CD} = \frac{LOAD}{2\cos 45^\circ}$

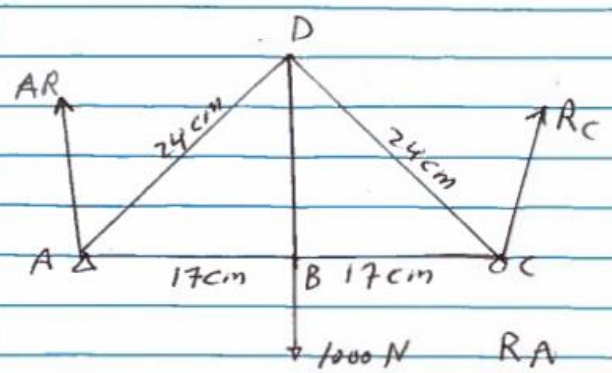
F_1 500g $= 0.500kg$

$F_1 = \frac{LOAD}{2} = \frac{mg}{2} = \frac{(0.500kg)(9.8\,m/s^2)}{2} = 2.45$

$F_1 = \frac{4.9}{2} = 2.45$

$F_3 = \frac{4.9}{2\cos 45^\circ} = 3.46$

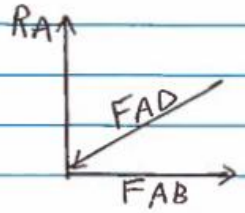
Project group H-W-1000 Load.



$R_A = 500N$

$R_C = 500N$

Joint A



$F_{ADx} = -R_A$

$F_{ADx} = -500\,N$

$F_{ADX} = -F_{AD}\cos 45$

$F_{AD} = -\frac{(-500N)}{\cos 45^\circ} = 707$

$= 707$

$F_{ADy} = -F_{AD}\sin 45^\circ$

$F_{ADy} = -707.1 \sin 45^\circ = -500\,N$

Joint B

$F_{BC} = 500N\ (T)$

$F_{BD} = 1000N\ (T)$

$F_{CD} = F_{AD}$ by symmetry

$F_{CD} = 707\ (C)$

$F_1 = F_{AB} = \frac{LOAD}{2}$

$F_2 = F_{BC} = \frac{LOAD}{2}$

$F_3 = F_{CD} = \frac{LOAD}{2\cos 45^\circ}$

F_1 1000 g = 1 kg

LOAD $\frac{mg}{2} = (1kg)(9.8\ m/s^2) = \frac{9.8}{2}$

4.9

$F_2 = \frac{9.8}{2} = 4.9$

$F_3 = \frac{9.8}{2\cos 45^\circ} = 6.9$