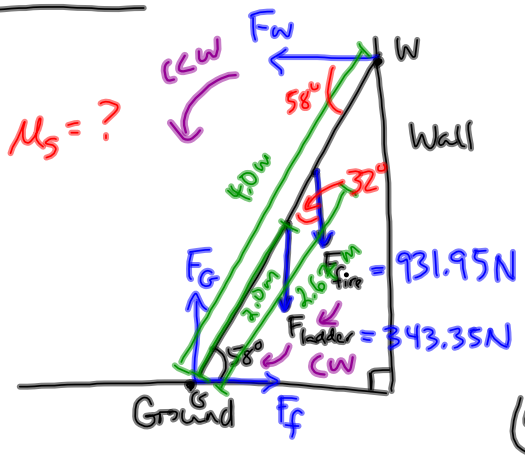
MP|496



Choose G as the pivot point:

$$\Sigma\tau_{CCW} = \Sigma\tau_{CW}$$

$$\tau_W = \tau_{ladder} + \tau_{fire}$$

$$(4.0m)F_W(\sin 58°) = (2.0m)(343.35N)\sin 32° + (2.67m)(931.95N)\sin 32°$$

$$(4.0m)F_W(\sin 58°) = 363.90N\cdot m + 1318.60\,N\cdot m$$

Recall: $\tau = rF\sin\theta$

$$F_W = \frac{1682.50\,N\cdot m}{(4.0m)(\sin 58°)}$$

$$F_W = 495.99N$$

$$F_W = 5.0\times10^2 N$$

In addition to $\vec{\tau}_{net} = 0$, $\vec{F}_{net}$ must also be zero.

Horizontally: $F_f = F_W = 495.99N$

Vertically: $F_G = F_{ladder} + F_{fire}$

$F_G = 343.35N + 931.95N$

$F_G = 1275.3$ ← basically F_N (the normal force)

$F_f = \mu F_N$

$\mu = \frac{F_f}{F_N}$

$\mu = \frac{495.99}{1275.3}$

$\mu \doteq 0.39$

TO DO:

FOP|Review|

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