DYNAMICS W/S

8) a)

$F_{net} = ma$

$F_p + N = W$

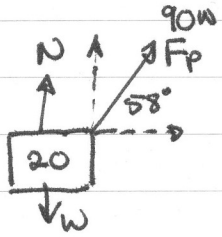
$= mg$

$N = mg - F_p$

$= (20)(9.8) - 90$

$\boxed{N = 106\,N \simeq 110\,N}$

b)



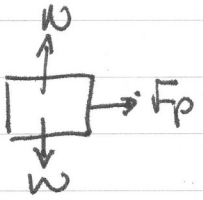
$F_p \sin 58° + N = mg.$

$N = (20)(9.80) - (90 \sin 58°)$

$= 119.67$

$\boxed{N \simeq 120\,N}$

c)



$N = W = 20 \times 9.80$

$\boxed{N = 196\,N = 200\,N}$

9) a)

$\bar{a} = 2.0\,m/s^2$ up.

$F_{net} = ma$

$N - mg = ma$

$N = (48)(2) + (48)(9.8$

$= 566.4\,N$

$\boxed{N = 570\,N}$

b) $\bar{a} = -1.6\,m/s^2$ down.

$F_{net} = ma$

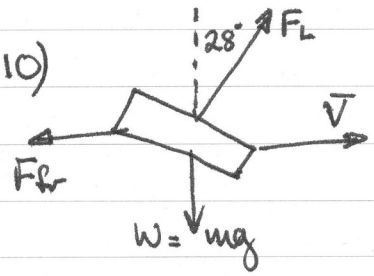
$N - mg = m\bar{a}$

$N = (48)(-1.6) + (48)(9.80)$

$= 393.6$

$\boxed{N \simeq 390\,N}$

10)



$m = 6300\,kg$

$\bar{a} = 0\,m/s^2$

a) $F_{net} = ma$

$F_{net} = F_L \cos\theta - mg$

$\therefore F_L \cos 28° = (6300)(9.80)$

$F_L = 69925\,N$

$\boxed{\simeq 7.0 \times 10^4\,N}$

b) $F_{fr} = F_L \sin 28°$

$= 32828$

$\boxed{\simeq 3.3 \times 10^4\,N}$