

HW5-3 Soln)

Let up be positive. Then,

$$+F_N - gm = ma$$

$$+F_N = gm + ma$$

- a) stationary $\rightarrow a = 0$ $+F_N = gm + ma = 10(90) + 90(0) = 900 \text{ N}$
- b) $a = + 1.2 \text{ m/s}^2$ $+F_N = gm + ma = 10(90) + 90(1.2) = 1008 \text{ N}$
- c) constant velocity $\rightarrow a = 0$ $+F_N = gm + ma = 10(90) + 90(0) = 900 \text{ N}$
- d) decelerating while rising $\rightarrow a = -0.5 \text{ m/s}^2$ $+F_N = gm + ma = 10(90) + 90(-0.5) = 855 \text{ N}$
- e) constant velocity $\rightarrow a = 0$ $+F_N = gm + ma = 10(90) + 90(0) = 900 \text{ N}$