Quiz 3 – PH241 **Name**_____ Key ☐ **Pledged**

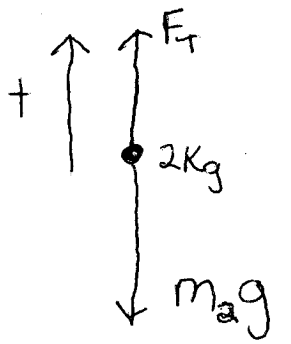
For full credit draw all appropriate force diagrams with coordinate systems

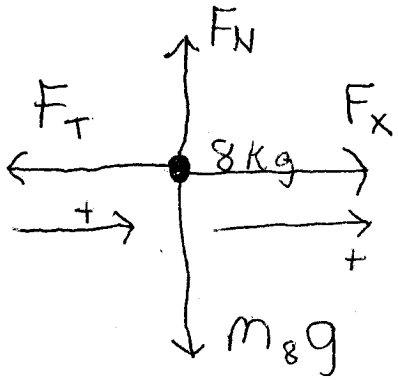
Examine the figure.

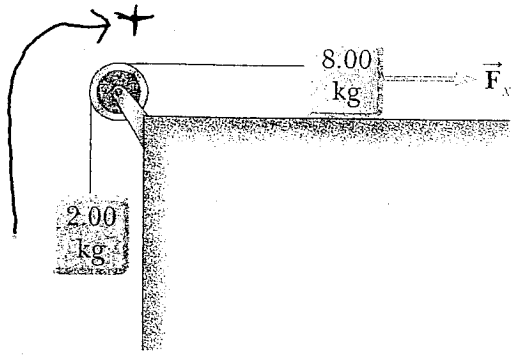
(A) What value of $\vec{F}x$ is needed for the system to stay at rest?

(B) What value of $\vec{F}_x$ is needed for the 2.00 kg mass to accelerate at 2.5 m/s^2 upward?

$\vec{F}_{tot} = m\vec{a} = \Sigma_i \vec{F}_i$







A) $ON = F_T - (2Kg)(9.81m/s^2)$ ①

$ON = F_N - (8Kg)(9.81m/s^2)$ ②

$ON = F_x - F_T$ ③

Add ① + ③ $ON = F_x - 19.6N$ so $\boxed{F_x = 19.6N}$

(B) ① $(2Kg)(2.5m/s^2) = F_T - (2Kg)(9.81m/s^2)$

③ $(8Kg)(2.5m/s^2) = F_x - F_T$

Add ① + ③ $25N = F_x - 19.6N$

$\boxed{F_x = 44.6\ N}$