

P122 Atwood Machine example. Page 483

Mass A = 8.5 kg
 Mass B = 17.0 kg Find acceleration rate and Tension.

$a = ?$ $T = ?$

$a = ?$ consider the system

$F_n = F_{gB} - F_{gA}$
 $= M_B g - M_A g$
 $= 9.81(17 - 8.5)$
 $F_n = 83.39 \text{ N}$

$F_n = m a$
 $a = \frac{F_n}{17 + 8.5} = \frac{83.39}{17 + 8.5}$
 $= 3.27 \text{ m/s}^2$

b) $T = ?$

$F_n = T - F_{gA}$
 $T = F_n + F_{gA}$
 $= m a + m g$
 $= 8.5(3.27 + 9.81)$
 $= 111.2 \text{ N}$

Mar 16-8:53 AM