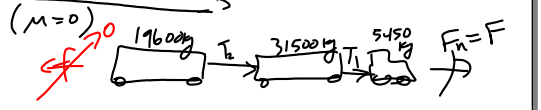
A tractor trailer pulling two trailers starts from rest and accelerates to 16.2 km/h in 15 s. The truck is 5450 kg, the first trailer is 31500 kg, and the second trailer is 19600 kg. What is the ~~force~~ needed to ~~accelerate the entire vehicle~~, and the tension is each of the hitches?



Kinematics $16.2\frac{km}{h} \div 3.6 = 4.5\ m/s$

$a = \frac{v_f - v_i}{t} = \frac{(4.5\ m/s) - 0}{15\ s} = 0.3\ m/s^2$

$F_n = m_T a$
$= m_T (0.3)$
$= (66550\ kg)(0.3)$
$= 19965\ N$

b) $T_1 = F_n = (m_A + m_B)(0.3) = (51100)(0.3) = 15330\ N$

c) $T_2 = F_n = m_B a = (19600)(0.3) = 5880\ N$

Oct 30-8:49 AM