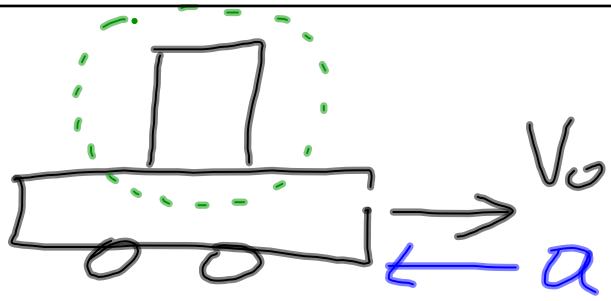
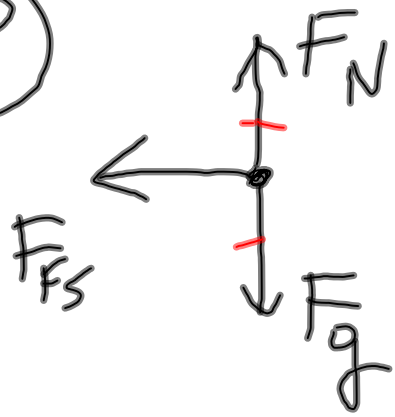
47



$\vec{a} = \frac{\vec{F}_{Net}}{m_{sys}}$

FBD Box



N2L (x):

$-F_{FS} = m \cdot a_x$

$-\mu_s m g = m a_x$

$a_x = -\mu_s g$

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53 DO OVER ....

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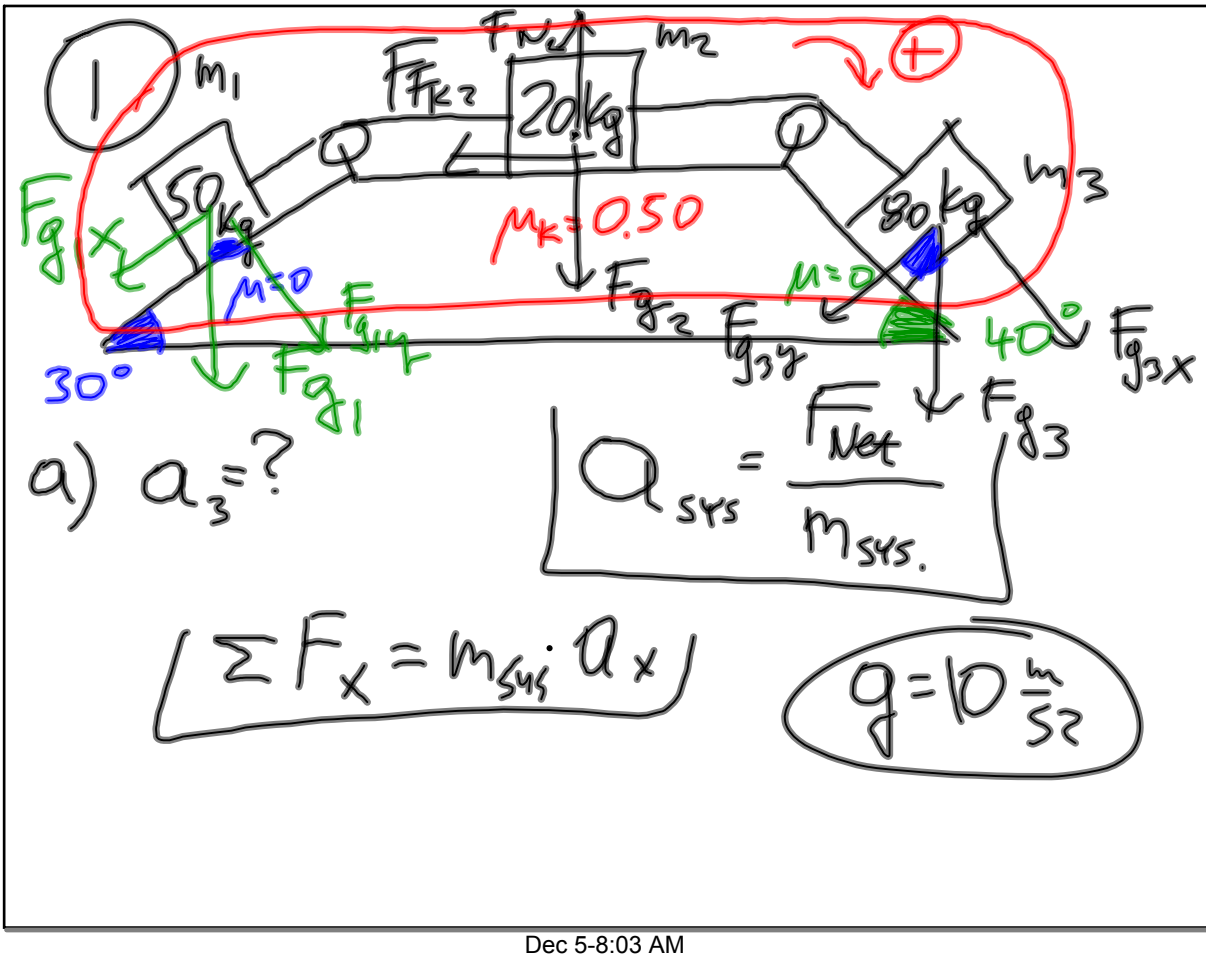

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$$a_x = \frac{m_3 g \sin 40^\circ - (0.5)(m_2)g - m_1 g \sin 30^\circ}{m_1 + m_2 + m_3}$$

$$a_x = 1.09 \frac{m}{s^2}$$

Q1. What would be the simplest way to ensure that the acceleration of the system is zero?

INCREASE F_{FK}; IN ORDER TO F_{FK} ↑ WE NEED TO ⇒ ⇒ —— 11 —— m_2 ⇒ INCREASES F_{N2}

The goal is to make $F_{net(x)} = 0$

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Q2. Calculate how much mass we need to add to m_2 , so $a_x = 0$?

Q3. The original system started from rest and it was in motion for 2 seconds. What was its velocity at that moment?

Q4. Describe the motion of the system right after we add the additional mass to m_2 an instant after 2 seconds in motion. Connect your answer with Newton's laws.

A2: We should add 32.8 kg, so $F_{net(x)} = 0$, therefore $a_x = 0$.

Dec 5-8:24 AM