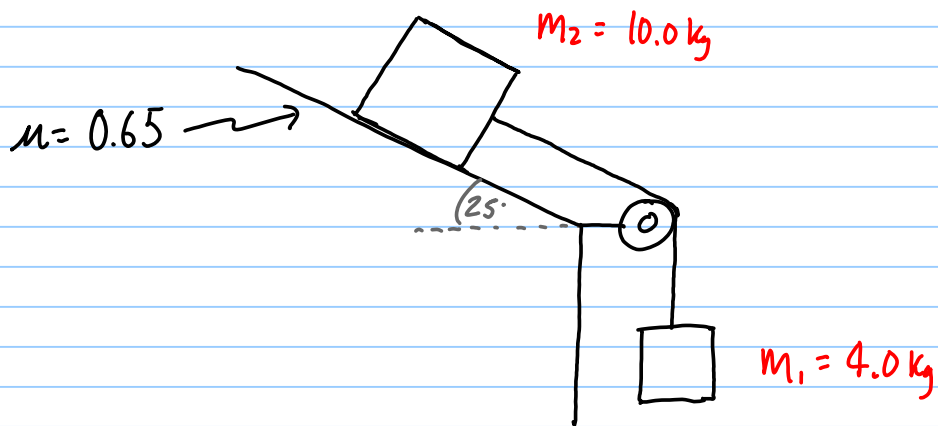


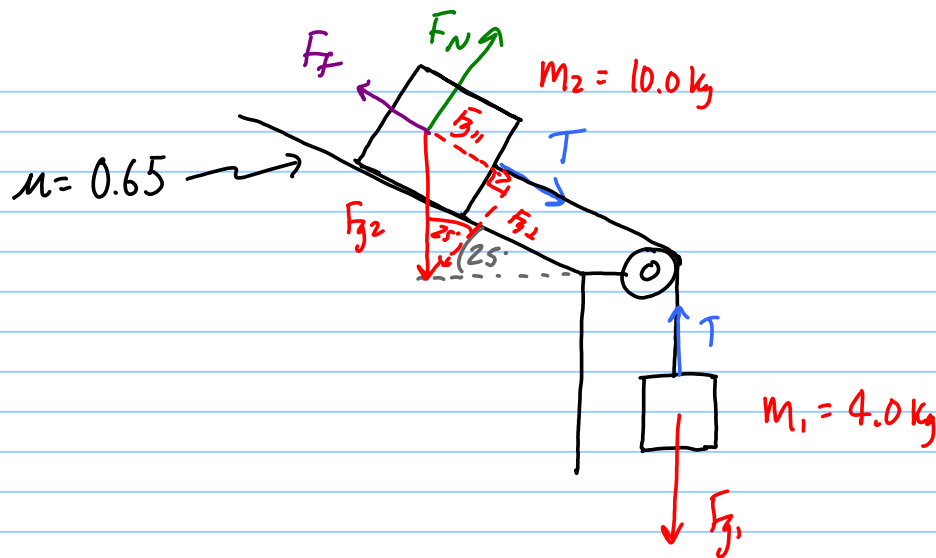
Quiz 4 b

Note Title

23/10/2011

Determine the tension in the rope in the system shown below.





$$F_{\text{net}} = F_{g1} + F_{g2\parallel} - F_f = m_+ a \quad \checkmark$$

$$F_{g1} = m_1 g = 39.2 \text{ N}$$

$$F_{g2\parallel} = m_2 g \sin 25^\circ = 41.42 \text{ N} \quad \checkmark$$

$$F_f = \mu m_2 g \cos 25^\circ = 57.73 \text{ N} \quad \checkmark$$

$$a = \frac{F_{g1} + F_{g2\parallel} - F_f}{m_+} = \frac{39.2 + 41.42 - 57.73}{(4.0 + 10.0)} = 1.635 \text{ m/s}^2 \quad \checkmark$$

$$\underline{m_1}: F_{\text{net}} = F_{g1} - T = m_1 a \quad \checkmark$$

$$T = F_{g1} - m_1 a = 39.2 - (4.0)(1.635) = \boxed{33 \text{ N}} \quad \checkmark$$