

2 eqn for 3 unk? Ugh.

Wait: block A moves at same rate as block B

$$\Rightarrow |a_x| = |a_y|$$

call it "a"

Now 2 unk:

block A: $T = m_A a$

block B: $T - m_B g = -m_B a$

Sub: $m_A a - m_B g = -m_B a$

$$(m_A + m_B) a = m_B g$$

$$\Rightarrow a = \left(\frac{m_B}{m_A + m_B} \right) g$$

check limiting cases:

$$m_A \gg m_B$$

$$a \rightarrow 0$$

yup

$$m_B \gg m_A$$

$$a \rightarrow g$$

yup