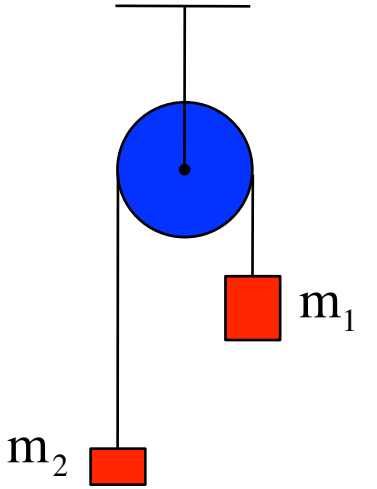
Problem 8.8



a.) This system is, again, an Atwood machine. It (the problem) is exactly the same as Problem 8.7 with the exception that in 8.7 you were given numbers and here you are only given variables.

ALWAYS do problems like this (and 8.7) using variables first, then put in the numbers to suit the situation. With "y = 0" at table height, this problem in very truncated form lays out as:

$$\sum KE_1 + \sum U_1 + \sum W_{ext} = \sum KE_2 + \sum U_2$$

$$0 + m_1gh + 0 = \left(\frac{1}{2}m_1v^2 + \frac{1}{2}m_2v^2\right) + m_2gh$$

$$\Rightarrow \quad v = \left[\frac{2\left[m_1gh - m_2gh\right]}{\left(m_1 + m_2\right)}\right]^{1/2}$$

b.) For this, again, look at the algebraic presentation of 8.7b.