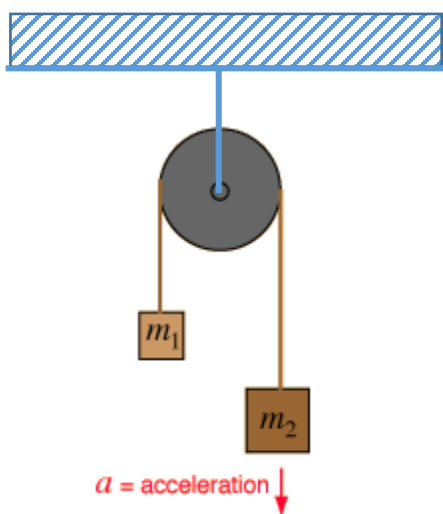


Atwood Machine Pre-Lab

Name: _____ Lab Section: _____

Date: _____

PreLab Activity (10 points) – Complete prior to your lab session & hand in at the START of lab.



For the Atwood machine above, two masses are attached to a string that passes over a pulley that is fixed in place. For this problem, *ignore all sources of friction* and assume the *pulley is massless*.

(a) Draw the free body diagrams for the two masses m_1 and m_2 .

(b) Write down Newton's 2nd Law for the two masses m_1 and m_2 (only in the y -direction).

(c) If m_2 is the heavier mass, explain why $a_1 = a$ and $a_2 = -a$ where $a \equiv |a_1| = |a_2|$.

(d) Using the results in Part (c), show that you get Eq. 6 in the Atwood Machine lab when $f = 0$ and $m_p = 0$. That is, solve for the acceleration a in terms of m_1 , m_2 , and g .

End of Prelab – TURN IN THIS PAGE WITH YOUR ANSWERS TO THE QUESTIONS AT THE START OF THE LAB SESSION