

Connected bodies : moving pulley

Questions

1. Is acceleration of both the blocks same in magnitude?
2. What is the acceleration if $m_2 = m_1/2$?
3. Is tension in the string supporting both the blocks same?
4. When both the masses are equal, will the system remain in equilibrium?
5. What happens to the ratio of accelerations of the bodies as mass of one of the bodies is increased?
6. What should be the ratio of masses if acceleration of m_1 is to be $g/2$ in upward direction?
7. What should be the ratio of masses if acceleration of m_1 is to be $g/2$ in downward direction?
8. What should be the ratio of masses if acceleration of m_2 is to be $g/2$ in upward direction?
9. What should be the ratio of masses if acceleration of m_2 is to be $g/2$ in downward direction?

Note :

While simulations help to provide valuable insights and visualizations, a rigorous mathematical solution should always be considered as a benchmark, demonstrating not just familiarity with the concept, but a deep understanding of the underlying principles.

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