

Chapter: 8 Torques, Equilibrium, and Machines

PRINT Name _____ Period _____

ALWAYS SHOW THE METHOD-- Hup, Two, Three, Four.

1. **Define:** a) Center of Gravity, b) Torque, c) Equilibrium, d) Translational Equilibrium, d) Rotational Equilibrium, The Principle of le Chatelier.
2. Define Center of Mass and Describe TWO ways to find it.
3. Find the weight (x) needed to balance a teeter-totter when a 100n force is 2.0m from the fulcrum and the weight (x) is 5.0m from the fulcrum. Ans: 40n. What is the total upward force on the fulcrum needed to prevent Translational (up and down) motion. Ans: 140n.
4. Two balls connected by 10.0m of cord are spinning around each other. One ball has a mass of 20kg, the other a mass of 5.0kg. Fine the point about which they rotate (The Center of Mass of the system). Ans: 2.0 m from the 20kg mass.
5. Discuss a) Actual Mechanical Advantage, b) Theoretical Mechanical Advantage, and c) Efficiency. d) Give their Formulas.
6. Find the a) Work Input, b) Work Output, c) AMA, d) TMA, e) Efficiency when a Load of 500.0n is Raised 30.0m by a Force of 100.0n Moving 200.0m. Ans: a) Input = 20000j b) Output = 15000j c) AMA = 5.0 d) TMA = 6.7 e) Eff = 75%.
7. State and Diagram the "Six Simple Machines" and show how they can be reduced into Two Simple Machines.
8. Diagram the Three Types of Levers and show their Mechanical Advantages.
9. Make up a diagram of a Compound Machine and show how its Mechanical Advantage is determined.
10. Illustrate an invention of Leonardo da Vinci and tell how Simple Machines are used.