

Chapters 5 & 6: Work, Power, Energy, Momentum

PRINT Name _____ Period _____

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

1. Define the Newton of Force. Find How many N of force are needed to accelerate a 100.0kg mass to 25.0m/s². Ans: 2500N.
2. Define the joule of work. Find how much work is done when a 200.0 N mass is lifted 30.0 m high. Ans: 6000 joules.
3. Define Power. Find the Power expended when a 300kg mass is lifted 50.0m in 10.0s. Ans:14700watts
4. Find the Horsepower in problem 3. Ans: 19.7hp
5. Define Potential Energy and find the PE stored in a 100.00kg mass when is has been raised 60.0m where $g=9.8\text{m/s}^2$. Ans: 58800.joules.
6. Define Kinetic Energy and find the KE in a 400.kg mass moving at 90m/s. Ans: 1620000 joules.
7. Write the Conservation of Energy Formula. Rearrange the formula solving for v (Show your work!). Find how fast a diver strikes the water when she jumps off a 3.00m board ($g=9.8\text{m/s}^2$). Ans: 7.7 m/s.
8. Write the Definition for Momentum. Find the Momentum of a 2.00kg water balloon travelling at 10.0m/s. Ans: 20kg•m/s.
9. Write the Definition for Impulse. (Remember Force is in Newtons). Find the Impulse of a 50.0kg mass acted upon by 200.0 N force for 80.0s. Ans: 16000 N•s.
10. Write the Impulse-Momentum Theory. Rearrange the Formula to find F (Show your work!). Find F when the Mass in 100.kg, the Speed is 40m/s, and the Time is 3.00s. Ans: 1330 N (Sig Dig).
11. Solve the Impulse-Momentum Theory for Δv . Find the Change in Velocity when the Force is 25.0 N, the Time is 45s, and the Mass is 500kg. Ans: 2.78m/s.
12. State Hooke's Law of Elasticity. Write the Work on a Spring Formula and the Spring Constant Formulas. Tell what the parameters are.