

Work & Power 101

1. When is work done? _____
2. When is work not done? _____
3. Give an example of when work is not done. _____
4. What is the equation for work? _____ What is the unit for work? _____
Force? _____ Distance? _____
5. Draw the Work equation triangle to the right:

Check for Understanding: Complete the following work problems using your knowledge of solving for work. DON'T FORGET YOUR UNITS!!!

-Amy uses 20N of force to push a lawn mower 10 meters. How much work does she do?

-How much work does an elephant do while moving a circus wagon 20 meters with a pulling force of 200N?

-A 900N mountain climber scales a 100m cliff. How much work is done by the mountain climber?

-Shawn uses 45N of force to stop the cart 1 meter from running his foot over. How much work does he do?

6. What is Power? _____
7. How do you increase the amount of work done? _____
8. What is the relationship between work and power? _____

9. Which is the most powerful when it comes to screwing in a screw; your fingers, a screwdriver, or a power drill? Explain your answer. _____

10. How do you solve for power? _____
11. What is the unit for Power? _____ Work? _____ Time? _____ 1 horsepower = _____
12. What might you have to solve for before you can solve for power? _____

13. Draw the Power equation to the right:

Check for Understanding: Complete the following Power problems using your knowledge of solving for Power. **DON'T FORGET YOUR UNITS!!!**

1. A person weighing 600N gets on an elevator. The elevator lifts the person 6 meters in 10 seconds. How much power was used?

Power = _____ Work = _____ Time = _____

2. How much time is needed to produce 720 Joules of work if 90 watts of power is used?

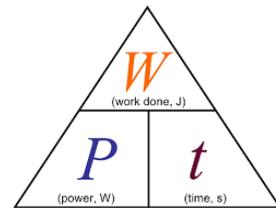
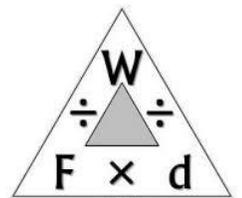
Power = _____ Work = _____ Time = _____

3. If 68 W of power is produced in 18 seconds, how much work is done?

Power = _____ Work = _____ Time = _____

4. A set of pulleys lifts an 800N crate 4 meters in 7 seconds. What power was used?

Power = _____ Work = _____ Time = _____



Conceptual Check for Understanding

1. What must happen for a force to do work on an object? _____
2. What formula relates work and power? _____
3. Why would someone prefer using a power drill over a screw driver? _____

4. Is there any work done when you hold a book over your head? Explain your answer. _____

5. You carry two heavy boxes upstairs to your room. Will you do more work on the boxes if you carry them up one at a time? Explain your answer. _____
