Mechanical Systems Study Guide

1. What is trial and error?
2. What is a system? Subsystem? Pg 270
3. What is a complex machine? Pg 270
4. Why is a machine not 100% efficient? 284-285
5. What is the definition of work? Pg 288
6. What is Pascals Law? Pg 294
7. What is the disadvantage of some simple machines like inclined planes, levers or pulleys?

8) What is the definition of design? Of Function? Pg 306

9) Name the three classes of levers and give an example of each. Pg 262

10) What simple machine converts rotational motion to linear motion? Pg 264

11) What is linkage? Pg 272

12) What are multiplying Gears? What are reducing Gears? Pg 273,275

13) Calculate Mechanical advantage with an output force of 85 and an input force of 15?

14) Calculate the Speed Ratio with an input distance of 24 and a output distance of 4?

15) Calculate Efficiency of a system with a MA of 16 and a SR of 28?

16) Bill pushes a cart with a force of 800N and a distance of 10m across the floor.

 Calculate work:

17) How much pressure is there with a force of 600N and a surface area of 15m2 ?

18) A large pipe connects two pistons. A force of 800N is applied to the first piston. The area of the first piston is 8m2. The area of the second piston is 4m2. What is the output force on the second piston?

19) Look at the inclined plane and figure out the mechanical advantage? Use the formula: MA = Distance of hypotenuse/Height

2m

10m

