Chapter 5 Test Review

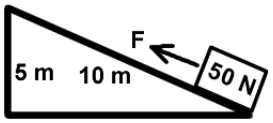
1. Energy	A. Total kinetic and potential energy.	1. Law of Conservation of Energy	A. Uses energy; makes work (forces)
2. Work	B. Rate of doing work; how fast you expend energy.	2. Motor	B. Energy can be transferred, but not created nor destroyed.
3. Power	C. Energy of position or height.	3. Generator	C. How fast something is done.
4. Kinetic Energy	D. Stored work; ability to create forces.	4. Closed System	D. A change in kinetic energy comes from work.
5. Potential Energy	E. Applied energy; can create energy.	5. Open System	E. Makes energy from work.
6. Potential Elastic Energy	F. Energy of compressed substances.	6. Rate	F. Outside energy can come in.
7. Mechanical Energy	G. Energy due to motion and inertia.	7. Work-Kinetic Energy Theorem	G. Outside energy cannot come in.

Name the six simple machines (and be able to identify them):

Where is most efficiency lost in simple machines?

Label De, Dr, Fin, Fout.

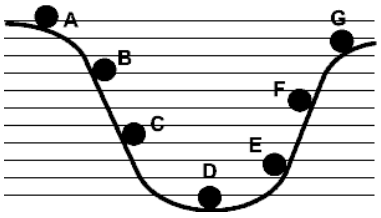
Find the MA of the _____.



How much force is necessary to pull the object up?

Which of the following shows positions from highest to lowest kinetic energy?

1. E, G, F
2. E, F, A
3. A, F, D
4. B, D, F



Label De, Dr, Fin, Fout.

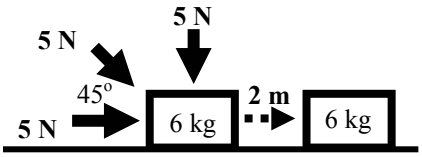
Find the MA of the _____.

How much force is necessary to lift the object?

In the same amount of time a more powerful motor:

A less powerful motor can do less, more, or the same amount of work?

Find the total work done on the 6 kg mass below.



Where is efficiency lost in the following simple machines?

Levers:

Pulleys:

Incline Planes:

If a person holds a book in their hands for 1 hour, how much work is done on the book? (And why?)

How much time does it take for a 120 W light bulb to expend 560 J of energy?

A 70 kg person climbs up 2 meters in 2.8 seconds. How much power did they use?

A simple machine with MA > 1 reduces or multiplies force?

How does a simple machine multiplies force?

A simple machine reduces or increases the work you do?

A simple machine seems easier because it reduces what two quantities?

Can a machine ever have an efficiency greater than 100%?

A ramp is inclined at 40^{o}. If a ball is rolled up the frictionless ramp going 6 m/s, how far up the ramp does it roll?

A person pushes down on a lever 3.2 meters to lift a 85 kg object 0.25 meters up. The lever makes the person feel like they are only 7kg. Find the efficiency of the lever.

A 1.2 kg rock is thrown up 15 m/s. If it went only 11 meters up into the air, find the force of air friction on the rock.

A 6 kg mass going 2 m/s is speed up to 7 m/s in 12 m. How big was the force?

A 4 kg mass going 6 m/s stops when it compresses a spring. If it took 1.3 meters to stop, find the spring constant of the spring.

A 2.5 kg mass is at the top edge of a frictionless, half-sphere fishbowl of radius 0.5 meters. When it is released, how fast will it be going at the bottom?

A 5 kg object is dropped from 30 meters up into the air.
How fast is it going 10 meters above the ground?

A 3 kg object is going 2 m/s. Using the graph at the right, find how fast the object is going after 11 meters.