Name: _____ Unit VII
Mr. Willis Mechanical Waves & Sound
Conceptual Physics: _____ Need extra help?
Date: _____ Check out *http://www.bayhicoach.com*

VII

MAP Practice Quiz

1. Mechanic's dilemma

A mechanic uses a type of pulley called a block and tackle to lift engines onto the worktable. One job required that an engine weighing 2500 N be lifted 1 meter. Using the block and tackle, the mechanic had to pull with a force of 300 N for a total of 10 meters to lift this engine the required 1 meter.

How much work was accomplished in lifting the engine?

How much work did the mechanic do in lifting the engine?

What was the efficiency of the block and tackle apparatus? You may express your answer as a ratio. For full credit, show all your work.

2. Small Fry

After a two day fishing tournament at a local lake, it was observed that in one cove the bass caught were of an unusually small mass. A large manufacturing plant was releasing hot water into the lake at this point. A group of high school ecology students wanted to know if there was a relationship between the water temperature, the mass of the fish, and the dissolved oxygen present in the organisms' environment. The students set up four aquariums and stocked them each with three (3) bass.

Name three variables that must be kept constant in this experiment so the data will tell the students what they want to know.

As shown in the table below, the students used different temperature settings for each aquarium. When they began the experiment the fish were all the same mass. After two months, the fish were weighed and the oxygen levels in each aquarium were measured. The results are shown in the table below.

Aquarium	Temperature (°C)	Average Mass of Fish (g)	Dissolved Oxygen (ppm)
1	23	162	8
2	25	121	7
3	27	102	6
4	29	94	5

Summarize the results of the students' investigation.

The manufacturing plant makes products that are useful in your community and provides jobs for many people. Five proposals are being considered by the city:

a. Shut down the plant
b. Move the plant away from the lake.
c. Require the plant to adopt new (but expensive) technology to cool the water off before it enters the cove.
d. Require the plant to load the water into tanks and haul it off to be dumped into a stream away from the lake.
e. Take no action since no fish are being killed as far as anyone can tell.

Which one of these proposals would you recommend based on the results of the students' investigation.

Justify your answer by describing two advantages and one disadvantage of the proposal you have selected.
Advantage 1

Advantage 2

Disadvantage

Discuss why you think the two advantages you listed outweigh the disadvantage.