Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Score:

Section:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_

**WORKSHEET**

Work Sheet in Thermodynamics

A.

1. State the first law of thermodynamics.

2. State the following thermodynamic processes. Try to relate each statement in equation.

3. State second law of thermodynamics.

4. How heat engine works?

5. How a refrigerator works?

B. Solve the following problems:

First Law of Thermodynamics

1. In a chemical laboratory, a technician applies 340 J of energy to a gas, while the system surroundings the gas does 140 J of work on the gas. What is the change in internal energy?

Isobaric Process

2. A gas confined in the cylinder of an engine has an initial volume of 2 x 10-4 m3. The gas then expands isobarically at 220 kPa . If 350 J of heat is absorbed in the process and the internal energy increases by 150 J, what is the final volume of the gas?

Second Law of Thermodynamics

3. A 37 % efficient engine loses 400 J of heat during each cycle. What work is done, and how much heat is absorbed in each cycle?

4. What is the efficiency of an ideal engine that operates between the temperatures of 525 K and 300 K?