Chapters/ Sections will be Covered

Book: Fundamentals of Physics by David Halliday, Jearl Walker, and Robert Resnick

Chapter Title: Temperature, Heat, and the First Law of Thermodynamics

Sections: The Zeroth Law of Thermodynamics
Measuring Temperature
Thermal Expansion
Absorption of Heat
The Absorption of Heat by Solids and Liquids
1st Law of thermodynamics

Chapter Title: Entropy and the Second Law of Thermodynamics
Sections: The Second Law of Thermodynamics, Entropy

Class Activity: Math Problem Lecture 22

John holds one end of the clothesline taut and wiggles it up and down sinusoidally with frequency $2.00\ Hz$ and amplitude $0.075\ m$. The wave speed on the clothesline is $v = 12.0\ m/s$. At $t = 0$ John's end has maximum positive displacement and is instantaneously at rest. Assume that no wave bounces back from the far end.

(a) Write a wave function describing the wave using wave length and period.

(b) Write equations for the displacement, as a function of time, of John's end of the clothesline and of a point $3.00\ m$ from that end.

Probable Final Questions: Lecture 22

Explain the equilibrium law of thermodynamics with diagrams.

Explain the first law of thermodynamics. Show that adiabatic, isothermal, isochoric, cyclical, and free expansion processes can be derived from this thermodynamic law.

What is the entropy of a system, and how can this quantity be positive and negative during the process?