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| / 60 |
| **Physics 30 - Lesson 40H****Thermodynamics**Pg 205 1, 3-8 |
| 1)  1)checkmark | * expansion / contraction
* electrical conductivity / resistance
* color changes with temperature
 |
|  3)checkmark | The ring diameter will become larger since the linear expansion is greater than the volume expansion of the ring |
|  4)checkmark | The  should be the original length. The change in length is proportional to the starting length.The final length should change as a result of temperature and coefficient of linear expansion. |
| checkmark 5) | Te hot ring lid is larger than the cool one and s therefore easier to remove (loosen) |
|  6)checkmark |  | Expansion and contraction of the long pipe on either end of the “U” is compensated for by the flexibility of the “U” shape |
|  7)checkmark | The value of 3.4ml /L /\*C is true only for temperatures around 20\*C. At different temperatures this value changes |
|  8) checkmark | Since the chimney expands and contracts with changes in temperature, any structure attached to it would move with the chimney. This would lead to structural damage of the house. |
| 2)/4 |  | checkmarka) checkmarkcheckmarkb) checkmark |
| 3)/4 |  | checkmarka)checkmarkb)checkmarkcheckmark |
| 4)checkmark/3 | checkmark* Heat – a transfer of energy from a hot to a cold object.
* Internal Energy (Thermal Energy) – interchangeable terms that depend on the temperature of an object and it’s S.H.C
* Temperature – refers to how hot or cold something is and it independent of the size / amount of the object. It is related to the Kinetic energy of the molecules of the object.

checkmark |
| 5 | Pg 270 – 271 # 1 – 13 (odds) |
|  1)checkmark | The internal energy of the water vapor decreases!The heat in the water vapor is transferred to the cold beer (oops!) water. No work is done in the process |
|  3)checkmark | More work is done for the isothermal process since the area under the isothermal graph is larger (Adiabatic involves no heat flow) |
|  5)checkmark | The volume of the refrigerator is much less than the volume of the room thus the refrigerator acts as a heat sink. The heat produced in running the refrigerator is greater than the heat lost to the refrigerator, therefore – NO! Much too inefficient! |
|  7) /3 | checkmarkcheckmark1. The engine might be feasible due to the vast quantities of tropical water available

checkmark1. The heating of the deep water and cooling of the surface water would interrupt / influence biological norms for surrounding wildlife.
 |
|  9) /3 | Any 3 of the possible thousands will do! |
|  11) | checkmark1. Cellular Respiration

checkmark1. Solar Radiation

checkmark1. Physics 30AP students working on this assignment
 |
|  13) | checkmarkEntropy always increases for any change |
| 6)/4 | checkmarkA) checkmarkcheckmarkB) Since T is the same, no change in internal energycheckmark |
| 7)/2 | checkmarkcheckmark |
| Bonus/3 | checkmarkcheckmark | checkmark |
| **Part B** |
| 1) /3 | checkmarkcheckmark | \* The measuring tape will expand; therefore, what is actually 1.0m long will measure as something **less** than a meter.checkmark |
| 2)/3 |  | checkmarkcheckmarkcheckmark |
| 3)/4 | A) checkmarkcheckmarkB) checkmarkcheckmark |
| 4)/3 | checkmark1. none – adiabatic means no heat flows in or out

checkmark1.

checkmark1. The temperature goes down since the internal energy decreases
 |
| 5)/3 | 7.0atm 280 630 | A) checkmarkcheckmarkB)checkmark |
| 6)/2 | checkmarkcheckmark |
| 7)/2 | checkmarkcheckmark |
| 8)/4 | checkmarkcheckmarkcheckmarkcheckmark |
| 9)Bonus/3 | checkmarkcheckmarkcheckmark |