Phase Change Problems

1. What is the formula for the relation between heat and temperature change?
   a. In this formula, what do the constants represent?

2. What is the formula for the heat necessary for a phase change?

3. What is the specific heat capacity of ice?

4. What is the melting point of water in Celsius?

5. What is the latent heat of fusion for water?

6. What is the specific heat capacity of liquid water?

7. What is the boiling point of water?

8. What is the latent heat of vaporization of water?

9. How much heat is required to change the temperature of 5 grams of ice from -10C° to 0C°?

10. How much heat is required to convert 5 grams of ice at -37C° to water at 1C°?

11. How much heat is required to convert 10 kg of ice at 0C°· to water at 98 C°?

12. How much heat is required to convert 7g of ice at -20C° to steam at 150C°?

13. The hoover dam produces 4.132×10^{13} Joules of energy each day.
   a. Determine the amount of energy produced each minute.
   b. Convert this energy to calories.
   c. Assuming that you start with ice at 0F°, determine the amount of ice that could be melted to water at 0C° with the energy produced by the hoover dam in a minute.
   d. Assuming that you start with ice at 0F°, determine the amount of ice that could be converted to steam at 100 C°