

Phase Change Questions

1. Why is it that the temperature of a material does not change while it is undergoing a phase change?
2. Why would it take longer to boil an egg in Denver, Colorado than it does in Dayton?
3. Find the energy required to heat 4 grams of ice from -20 C° to 0 C° .
4. Find the energy needed to convert 10 grams of ice at 0 C° to water at 0 C° .
5. Find the energy needed to convert .05 grams of ice at -57F° to water at 212F° .
6. Find the energy required to convert 1 kg of water at 58F° to ice at 0F° .
7. You have been asked to find the latent heat of fusion of an unknown material. Its specific heat capacity has already been determined $.37\text{cal/g}\cdot\text{C}^\circ$ as a solid and $2\text{ cal/g}\cdot\text{C}^\circ$ as a liquid. It's melting point has also been determined at 1atm, 545 C° . You start with .25 grams at 20 C° and heat it up to 625 C° . You find experimentally that this process requires 382 calories.
8. Find the energy required to convert 100g of ice at -58F° to steam at 500F° .

9. Find the energy required to convert 57kg of ice at -2C° to steam at 213F° .
10. Why is the latent heat of vaporization for water so much higher than the latent heat of fusion?
11. Find the energy required to convert 7g of water at 58F° to steam at 120C° .
12. Find the energy required to convert .25kg of steam at 356F° to ice at -20C° .
13. Find the energy required to convert 3g of water at 36F° to ice at 0F° .