Name _____ **Date** _____ **Hr** _____

Worksheet 7-3—Changes in State

1. How many joules are needed to melt 88.5 g of antimony if the heat of fusion is 165 J/g?

2. What mass of antimony can you melt with 9473 J if the heat of fusion is 165 J/g?

3. How many joules are needed to boil 28.1 g of water if the heat of vaporization is 2256 J/g?

4. If you need to boil 34.5 g of water, how much energy do you need to add if the heat of vaporization is 2256 J/g?

5. What mass of ethanol can you boil with 9986 J if the heat of vaporization is 854 J/g?

6. If you want to melt 81.1 g of antimony, how much energy do you need to add if the heat of fusion is 165 J/g?

Useful information about water:
enthalpy of fusion = 80.87 cal/g enthalpy of vaporization = 547.2 cal/g
specific heat capacity of ice = 0.51 cal/g°C
specific heat capacity of liquid water = 1.00 cal/g°C
specific heat capacity of steam = 0.48 cal/g°C

7. How many calories are needed to warm 75.1 g of water at –32.7°C to 127°C?

8. How many calories are released when 58.4 g of steam at 144°C is cooled to –37.6°C?

9. How many calories are needed to warm 86.2 g of water at 44.4°C to 107°C?