Calculations for Temperature and Phase Change Worksheet

The heat of fusion of ice is 79.7 cal/g.
The heat of vaporization of water is 540 cal/g.
Report the answer using the correct # of significant figures!

1. How much energy is required to melt 100.0 grams of ice?

Answer: 7970 cal

2. How much energy is required to vaporize 234.5 g of water?

Answer: 1.3×10^5 cal

3. If 30.6 calories are required to vaporize 25g of a substance, what is the heat of vaporization of that substance?

Answer: 1.2 cal/g

4. How much energy is removed from 500.0 g of water when the temperature is lowered by 1.10^oC?

Answer: -2.30×10^3 J

5. How much energy is required to raise the temperature of 1000.0 g of water from 23.00^oC to 26.00^oC?

Answer: 1.26×10^4J

6. The heat capacity (specific heat) of copper is (0.0924 cal/g^{o}C), how much energy is required to raise the temperature of 10.0g of copper by 100.0 ^{o}C?

Answer: 92.4 cal

7. If 25.6 J of energy raised 786g of a substance from 20.0^oC to 35.0^oC, what is the specific heat of the substance (S)?

Answer: 2.17×10^{-3}J/g ^{o}C