**Phase Diagrams and Heat with Phase Change Homework**

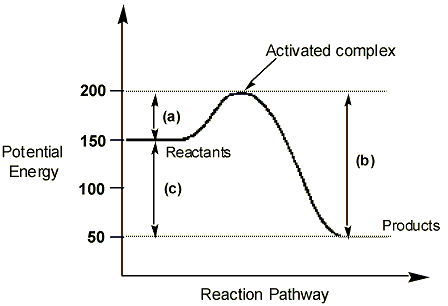
Given information for H2O:

ΔHfus = 6.01 kJ/mol Melting Point: 0.00oC

ΔHvap = 40.7 kJ/mol Boiling Point: 100oC

C = 4.18 J/oC•g

1. How many kilojoules (kJ) are required to heat 250 grams of liquid water from 00C to 1000 C?
2. How many kilojoules (kJ) are required to melt 100 grams of water?
3. How many kilojoules (kJ) are required to boil 150 grams of water?
4. How many kilojoules (kJ) are required to heat 200 grams of water from 25 ˚C to 125˚C?
5. How many kilojoules (kJ) are given off when 120 grams of water are cooled from 25˚C to -25˚C?
6. How many kilojoules (kJ) are required to heat 75 grams of water from -85˚C to 185˚C?
7. How many kilojoules (kJ) are required to heat a frozen can of juice, mostly water (360 grams) from -5 ˚C (the temperature of an overcooled refrigerator) to 110˚C (the highest practical temperature within a microwave oven)?
8. Label all of the components (a, b and c). Include all of the necessary numbers, and the type of reaction that is occurring. Additionally, show what would happen if a catalyst was put into this reaction.

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