

Question 1: How many Calories are in a serving of Chili's Chocolate Molten Lava Cake that contains 158 grams of carbohydrate, 62.0 grams of fat and 12.0 grams of protein?

158 g carbohydrate x (4 Cal / gram of carbohydrate) = 632 Cal

62.0 g fat x (9 Cal / gram of fat) = 558 Cal

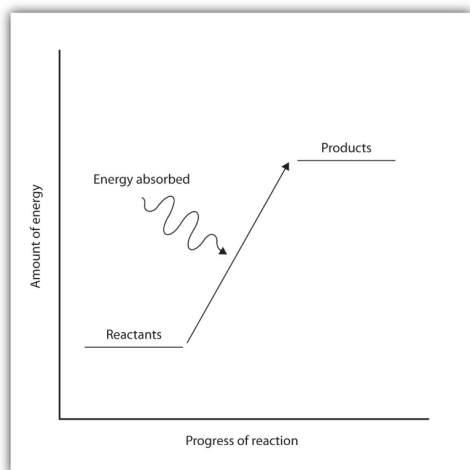
12.0 g protein x (4 Cal / gram of protein) = 48.0 Cal

632 + 558 + 48.0 = 1240 Calories (rounded to three sig figs)

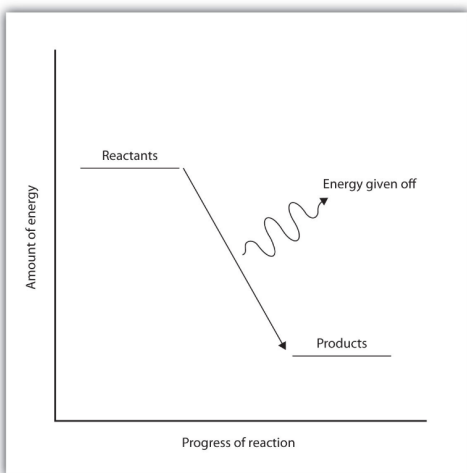
Question 2: Fill in the table below with the six phase changes and if each one is exothermic or endothermic.

Phase Change	Endothermic or Exothermic
melting	endothermic
freezing	exothermic
evaporation / vaporization	endothermic
condensation	exothermic
sublimation	endothermic
deposition	exothermic

Question 3: Draw a reaction diagram for an endothermic reaction.



Question 4: Draw a reaction diagram for an exothermic reaction.



Question 5: Fill in the blanks.

An exothermic reaction (**gives off** / absorbs) energy and has a (positive / **negative**) delta H.

An endothermic reaction (gives off / **absorbs**) energy and has a (**positive** / negative) delta H.

Increasing the temperature of a chemical reaction will (**increase** / decrease) the rate of reaction. Briefly explain why.

Increasing the temperature increases the kinetic energy of the molecules, making them move faster. Faster movement means a greater chance molecules will collide with each other and react to form new molecules.

Adding a catalyst to a chemical reaction will (**increase** / decrease) the rate of reaction. Briefly explain why.

Adding a catalyst increases the reaction rate by lowering the activation energy for molecules to form product. Biological catalysts are known as enzymes, which are proteins.

Decreasing the concentration of a reactant in a chemical reaction will (increase / **decrease**) the rate of reaction. Briefly explain why.

Decreasing the concentration of reactants lowers the probability of molecules to encounter each other, thus decreasing the reaction rate.