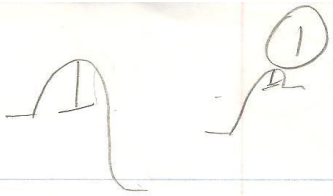


5.1 Worksheet

1. Look in the 5/15 Alternative text for these.

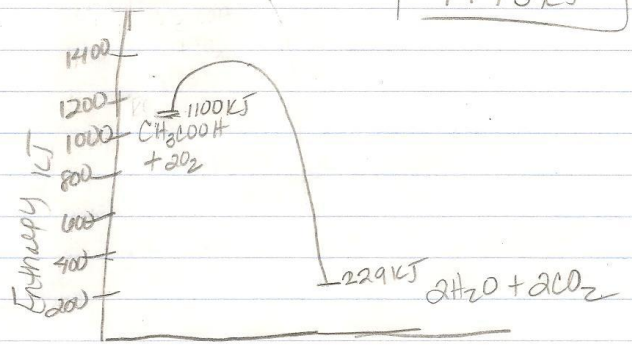
2. a) endothermic
   b) exothermic

3. a) $CH_3COOH_{(\ell)} + 2O_{2(g)} \rightarrow 2H_2O_{(\ell)} + 2CO_{2(g)}$ $\Delta H = -871.7\ kJ$

   b) $-871.7\ kJ/1\ mol \times 2 = -1743.4\ kJ$

   $-1743\ kJ$ -5/15

   c)

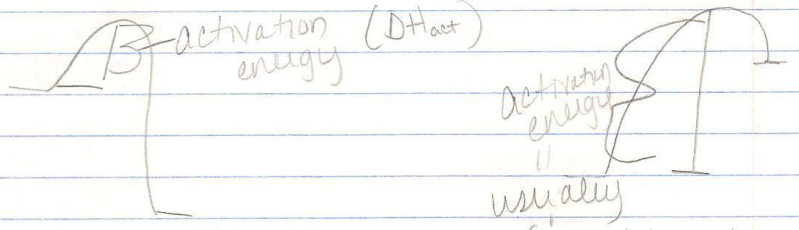


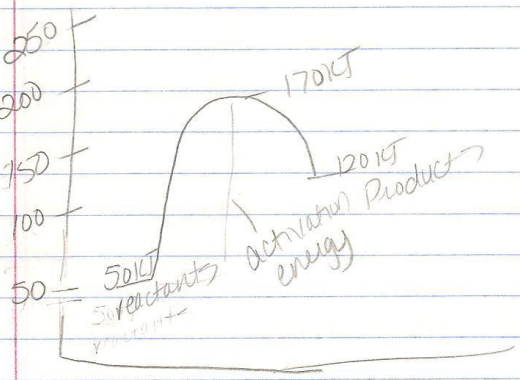
Reaction Progress

Exothermic Reactions = Combustion & neutralization

4. Energy is released
   The products are always more stable (lower energy) than reactants.

5. Activation energy = energy differnce blw reactants & transition state (top of "hill")

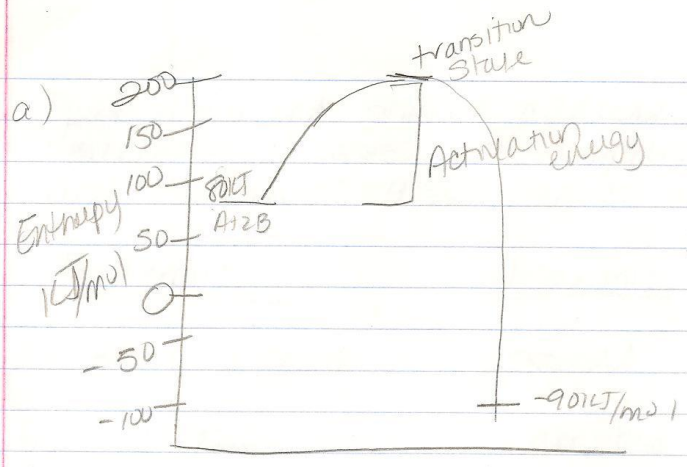




6. a) Naoh (reactant) energy is greater than that of products.

b) Exothermic

7. a)



energy progress

b) exothermic
c) 90 + 80 = 170 kJ/mol
d) –
e) products, because they have a lower energy than the reactants.

8. 1 atm → * 101.3 kPa
298K
shown as per 1 mole of substance

9. There are twice as many molecules to "heat up" to achieve the same kinetic energy as the smaller beaker.

10. a) Neutralization (& Combustion reactions) are always exothermic so show a generic exothermic diagram
- reactants = higher energy = weaker bonds than products.

4

12. Your argument should address the ideas of mass and temperature and how these would affect energy.

13.

	Exothermic	Endothermic
ΔH sign is	negative	positive
Energy	released	absorbed
	Products more stable than reactants	Reactants more stable than products
	Products have less energy than reactants	Products have more energy than reactants
Temperature	increases of immediate surrounding area	decreases of immediate surrounding area