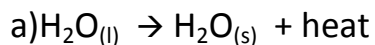


Exo/Endo problems

- 1) Classify as endothermic or exothermic
 - a) $\text{H}_2\text{O}_{(l)} \rightarrow \text{H}_2\text{O}_{(s)} + \text{heat}$
 - b) A fire
 - c) A pack which makes your hand cold
 - d) Water evaporating from your skin
- 2) Give an oxidation example occurring in a banana.
- 3) Give an oxidation example not involving oxygen.
- 4) Do all of page 86

Solutions

- 1) Classify as endothermic or exothermic



exothermic(heat is on the right hand side)

- b) A fire

Exothermic(it releases heat)

- c) A pack which makes your hand cold

Endothermic(it steals heat from your hand, making it cold)

- d) Water evaporating from your skin

Endothermic(it steals heat from your skin, making it cold)

- 2) Give an oxidation example occurring in a banana.

Browning

- 3) Give an oxidation example not involving oxygen.

Chlorination; bleaching of hair with hydrogen peroxide; reaction of lithium with fluorine(lithium loses an electron to fluorine)

- 4) Do all of page 86

Ex 1 p 86

$$3.0 \text{ g C}_2\text{H}_6\text{O} \left(\frac{\text{mole}}{46 \text{ g}} \right) = 0.06521... \text{ moles of C}_2\text{H}_6\text{O}$$

$$0.06521... \text{ moles of C}_2\text{H}_6\text{O} \left(\frac{1367 \text{ kJ}}{1 \text{ mole of C}_2\text{H}_6\text{O}} \right) = 89 \text{ kJ} \quad (2 \text{ SF})$$

Ex 2

a) $M = CV = 0.10 \text{ mol/L} (0.20 \text{ L}) = 0.020 \text{ moles NaOH}$

$$0.020 \text{ moles NaOH} \left(\frac{54 \text{ kJ}}{2 \text{ moles of NaOH}} \right) = 0.54 \text{ kJ} \quad (2 \text{ SF})$$

$$b) 2.45 \text{ kJ} \left(\frac{2 \text{ moles of NaOH}}{54 \text{ kJ}} \right) = 0.0907407 \dots \text{moles of NaOH}$$

$$C = \frac{n}{V} = \frac{0.090740}{0.200 \text{ L}} = 4.5 \text{ M} \quad (2 \text{ SF})$$

More endo /exo practice

P133 no, 13 textbook

- 13. a) endothermic
- b) endothermic
- c) exothermic
- d) exothermic
- e) endothermic
- f) exothermic