

13) the reactants, Endo-gain, E

14) a) gets colder - Endo

b) warmer - Exo

c) warmer - Exo

d) particles move faster - Endo

22) ICE \rightarrow H₂O : particles take in E to break bonds and start moving faster

H₂O \rightarrow steam: Take in more E, move faster yet and break free

23) lower

24) $q = ?$

$$m = 7.40 \text{ g}$$

$$s = \frac{4.18 \text{ J}}{\text{g}^\circ\text{C}}$$

$$\Delta T = 55^\circ\text{C}$$

$$q = m s \Delta T = (7.40 \text{ g}) \left(\frac{4.18 \text{ J}}{\text{g}^\circ\text{C}} \right) (55^\circ\text{C})$$

$$= 1.7 \times 10^3 \text{ J}$$

25) a) $7845 \text{ cal} \times \frac{4.184 \text{ J}}{1 \text{ cal}} =$

c) $62.142 \text{ kcal} \times \frac{4.184 \text{ kJ}}{1 \text{ kcal}} =$

b) $4.55 \times 10^4 \text{ cal} \times \frac{4.184 \text{ J}}{1 \text{ cal}} =$

d) $43,024 \text{ cal} \times \frac{4.184 \text{ J}}{1 \text{ cal}} =$

$$\textcircled{26} \quad q = 72.4 \text{ kJ} \times \frac{1000 \text{ J}}{1 \text{ kJ}} = 72,400 \text{ J}$$

$$m = 952 \text{ g}$$

$$s = ?$$

$$\Delta T = 10.7^\circ\text{C}$$

$$q = m(s)\Delta T$$

$$s = \frac{q}{m\Delta T} = \frac{72,400 \text{ J}}{(952 \text{ g})(10.7^\circ\text{C})} = \frac{7.11 \text{ J}}{\text{g}^\circ\text{C}}$$

$$\textcircled{27} \quad C_u = .3844 \text{ J/g}^\circ\text{C}$$

$$A_g = .24 \text{ J/g}^\circ\text{C}$$

$$A_u = .13 \text{ J/g}^\circ\text{C}$$

has the smallest specific \therefore largest ΔT

$$\textcircled{28} \quad q = 1251 \text{ J}$$

$$m = 35.2 \text{ g}$$

$$s = ?$$

$$\Delta T = 25.0^\circ\text{C}$$

$$q = m(s)\Delta T$$

$$s = \frac{q}{m\Delta T} = \frac{1251 \text{ J}}{(35.2 \text{ g})(25.0^\circ\text{C})} = \frac{1.42 \text{ J}}{\text{g}^\circ\text{C}}$$