

U5 HW 2

FITCH

6. 75g ^{solid} Na @ 98°C ⇒ ? CAL TO MELT, HEAT TO BOILING, THEN VAPORIZE?

$$(75g Na) \times \frac{1 \text{ mol}}{22.99g} = 3.26228... \text{ mol Na} - \text{DON'T NEED THIS}$$

$$\textcircled{1} (75g Na) \times \frac{27.1 \text{ cal}}{g} = \frac{2055}{g} \text{ CAL TO MELT SOLID Na @ } 98^\circ\text{C TO LIQUID Na @ } 98^\circ\text{C}$$

$$\textcircled{2} Q = c \cdot m \cdot \Delta t$$

$$= \left(1.32 \frac{\text{cal}}{g^\circ\text{C}} \right) (75g) (791^\circ\text{C}) \quad 889^\circ\text{C} - 98^\circ\text{C} = 791^\circ\text{C} = \Delta t$$

$$= 18984 \text{ CAL TO HEAT LIQUID Na FROM } 98 \rightarrow 889^\circ\text{C}$$

$$\textcircled{3} (75g Na) \times \frac{1048 \text{ cal}}{g} = \frac{78600}{g} \text{ CAL TO BOIL LIQUID Na @ } 889^\circ\text{C INTO GASEOUS Na @ } 889^\circ\text{C}$$

TOTAL TO MELT 75g Na @ 98°C, HEAT TO BOILING @ (889°C) THEN PRODUCE Na GAS @ 889°C

$$= 2055 \text{ CAL} + 18984 \text{ CAL} + 78600 \text{ CAL}$$

$$= 99639 \text{ CAL}$$

$$= 99.639 \text{ K CAL}$$

