

ThermoChemistry Worksheet One is AFTER the items you must know and items to skip; Scroll down.

1. Test Review/Homework due on Thursday.

a. Numbers you must know for homework/review; Write these ON your worksheet:

Water Vapor or Steam:  $C_{\text{steam}} = 2.02 \text{ J/g } ^\circ\text{C}$ ;

Liquid Water:  $C_{\text{water}} = 4.184 \text{ J/g } ^\circ\text{C}$ ;

Solid Ice:  $C_{\text{ice}} = 2.06 \text{ J/g } ^\circ\text{C}$

b. Skip #7

c. #9; do only: Draw a heating curve of water, like the one on back of the worksheet to help, except start at -15 degrees C and end at 120 degrees C.

1. heating of a solid
2. heating of a liquid
3. heating of a gas

d. Skip #10

e. #11; do only:

1. heating of a solid
2. heating of a liquid
3. heating of a gas

f. Skip #12-15

g. Question 16:

1.  $\Delta t_{\text{iron}}$  USE  $\Delta t_{\text{iron}} = (95^\circ\text{C} - T_f)$  or  $(95^\circ\text{C} - x)$
2.  $\Delta t_{\text{water}}$  USE  $\Delta t_{\text{water}} = (T_f - 25^\circ\text{C})$  or  $(x - 25^\circ\text{C})$

h. Question 19:

1.  $\Delta t_{0,0}$  USE  $\Delta t_{0,0} = (T_f - 0.0^\circ\text{C})$  or  $(x - 0.0^\circ\text{C})$
2.  $\Delta t_{30,0}$  USE  $\Delta t_{30,0} = (30.0^\circ\text{C} - T_f)$  or  $(30.0^\circ\text{C} - x)$

i. Question 20:

1.  $\Delta t_{0,0}$  USE  $\Delta t_{0,0} = (T_f - 0.0^\circ\text{C})$  or  $(x - 0.0^\circ\text{C})$
2.  $\Delta t_{40}$  USE  $\Delta t_{40} = (40.0^\circ\text{C} - T_f)$  or  $(40.0^\circ\text{C} - x)$

j. Question 21: Skip h. and j.

### Thermochemistry Problems - Worksheet Number One

#### [Solutions to 1-18 and 20](#)

1. How much energy must be absorbed by 20.0 g of water to increase its temperature from 283.0 °C to 303.0 °C?
2. When 15.0 g of steam drops in temperature from 275.0 °C to 250.0 °C, how much heat energy is released?
3. How much energy is required to heat 120.0 g of water from 2.0 °C to 24.0 °C?
4. If 720.0 g of steam at 400.0 °C absorbs 800.0 kJ of heat energy, what will be its increase in temperature?
5. How much heat (in kJ) is given out when 85.0 g of lead cools from 200.0 °C to 10.0 °C? ( $C_p$  of lead = 0.129 J/g °C)
6. If it takes 41.72 joules to heat a piece of gold weighing 18.69 g from 10.0 °C to 27.0 °C, what is the specific heat of the gold?
7. It takes 333.51 joules to melt exactly 1 gram of H<sub>2</sub>O. What is the molar heat of fusion for water, from this data?
8. A certain mass of water was heated with 41,840 Joules, raising its temperature from 22.0 °C to 28.5 °C. Find the mass of water.
9. How many joules of heat are needed to change 50.0 grams of ice at -15.0 °C to steam at 120.0 °C. Make a graph to indicate this change.