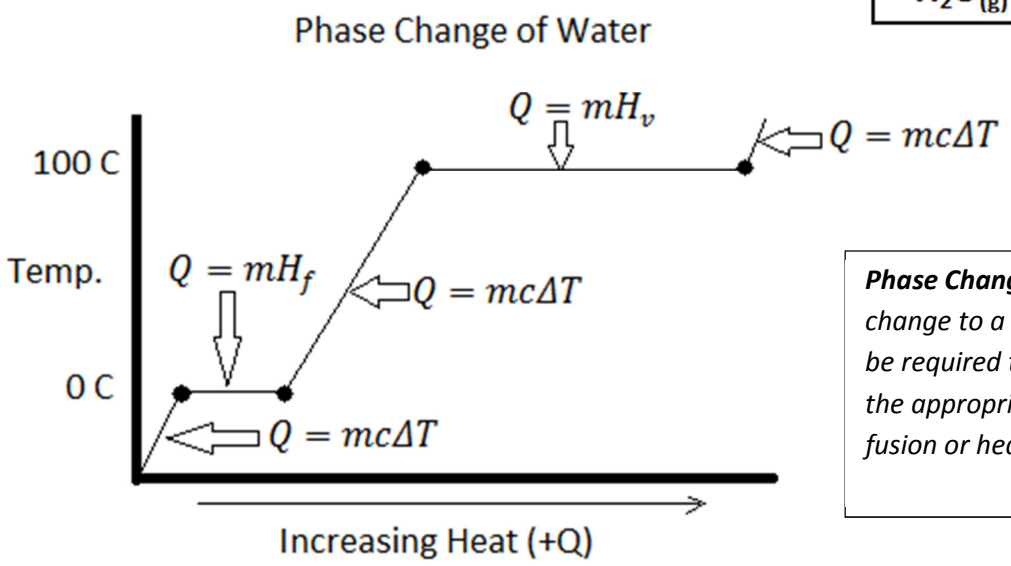
Phase Change Practice Problems Name_____ Date_____ Block_____

Important information:

Substance	Heat of Fusion (H_f)	Heat of Vaporization (H_v)
Water	334 J/g	2260 J/g

Substance	Specific Heat
$H_2O_{(s)}$	2.108 J/g°C
$H_2O_{(l)}$	4.186 J/g°C
$H_2O_{(g)}$	1.996 J/g°C



Phase Change Calculations: *Evert time you change to a different line segment, you will be required to use a different formula with the appropriate specific heat and heat of fusion or heat of vaporization.*

1. What heat is required to turn change 100 grams of 75°C water to 110°C steam? (4 steps)

   a. Step 1: Calculate the heat (Q) required to heat 75°C water to 100°C water.

   b. Step 2: Calculate the heat (Q) required to vaporize the 100°C water to 100°C steam.

   c. Step 3: Calculate the heat (Q) required to heat 100°C steam to 110°C steam.

   d. Step 4: Add all the steps together to determine the total heat to change 75°C water to 110°C steam.

2. What heat is required to turn 55 grams of -12°C ice to 85°C water?

    a. Step 1: Calculate the heat (Q) required to heat -12°C ice to 0°C ice.

    b. Step 2: Calculate the heat (Q) required to change the 0°C ice to 0°C water.

    c. Step 3: Calculate the heat (Q) required to change 0°C water to 85°C water.

    d. Step 4: Add all the steps together to determine the total heat to change -12°C ice to 85°C water.

3. What heat it released when 200 grams of 105°C steam condenses to 54°C water?

    a. Step 1: Calculate the heat (Q) required to cool 105°C steam to 100°C steam.

    b. Step 2: Calculate the heat (Q) required to condense the 100°C steam to 100°C water.

    c. Step 3: Calculate the heat (Q) required to change 100°C water to 54°C water.

    d. Step 4: Add all the steps together to determine the total heat to change 105°C steam to 54°C water.

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The previous page was practice that we did together, this page will be removed and we will grade it for a stamp. You must receive >66.6 % to earn the stamp.

1. You have 82 grams of -7° ice. How much heat will be needed to turn that ice into 112°C steam? *(I suggest you break this problem apart into steps.)*

2. 115 grams of 125°C steam is condensed to 50°C water. How much heat is released in this process?

3. 25 grams of -5°C ice is heated and melts to form 40°C water. How much heat was absorbed?