Mr. Batten's Physics
Name: _____ **Period:** _____ **Date:** _____ **ID: A**

Practice Quiz Chapter 12

Numeric Response

1. Years ago, a block of ice with a mass of about $20kg$
   ice was $0.0°C$
   absorb?_____

   .

2. A $40.0g$ sample of chloroform is condenses from a vapor at $61.6°C$ to a liquid at $61.6°C$. It liberates $9870J$ of heat. What is the heat of vaporization of chloroform?

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   .

3. A $4.2g$ ***lead*** bullet moving at $275m/s$ strikes a steel plate and stops. If all of its kinetic energy is converted to thermal energy and none of it leaves the bullet, what is the temperature change of the bullet?_____
   (Hint, remember that Thermal Energy and Kinetic Energy are measured in Joules)

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4. A $1.0x10^2 g$ mass of tungsten at $100.0°C$ is placed in $2.00x10^2 g$ of water at $20.0°C$. The mixture reaches equilibrium at $21.6°C$. Calculate the specific heat of tungsten._____

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5. How much heat is added to $10.0g$ of ice at $-20.0°C$ to convert it to steam at $120.0°C$?_____

Practice Quiz Chapter 12
Answer Section

NUMERIC RESPONSE

1. $\Delta Q = (20kg)\left(\frac{3.34x10^5 J}{kg}\right) = 6.68x10^6 J$

2. $H_v = \frac{Q}{m} = \frac{9.87x10^3 J}{.040g} = \frac{9.87x10^3 J}{4.0x10^{-2} kg} = 2.468x10^5 \, J/kg$

3. $\Delta Q = \Delta K = \frac{1}{2}mv^2 = mC\Delta t \rightarrow \Delta t = \frac{v^2}{C2}$

   $\Delta t = \frac{(275m/s)^2}{\left(130 J/kg \cdot k\right)2} = 291°$

4. $\Delta Q = mC\Delta t \rightarrow C = \frac{\Delta Q}{m\Delta t} = \frac{m_w C_w \Delta t_w}{m_t \Delta t_t} = \frac{(.20kg)(4180 j/kg \cdot K)(1.6°K)}{(.10kg)(78.4°K)}$

   $= 170.6 \rightarrow \frac{171J}{kg \cdot K}$

5. $\Delta Q = \Delta Q_s + H_f + \Delta Q_l + H_v + \Delta Q_g$

   $\rightarrow (.010kg)\left((20°K)(2060) + \left(3.34x10^5\right) + (100°K)(4180) + \left(2.26x10^6\right) + (20°K)(220)\right)$

   $\rightarrow (.010kg)\left(4.12x10^4 J + 3.34x10^5 J + 4.18x10^5 J + 2.26x10^6 J + 4.04x10^4 J\right)$

   $= 3.09x10^4 J$