

Phase Changes

Name: _____

1) A 30.0 g piece of ice is heated from $-10.0\text{ }^{\circ}\text{C}$ to the boiling point of water. How much heat is required to heat the ice, melt the ice, and then heat the water to boiling temperature?

2) A 89.0 g sample of water is heated from room temperature $23.0\text{ }^{\circ}\text{C}$ to steam at $115.0\text{ }^{\circ}\text{C}$. How much heat is added to accomplish this?

3) A 10.0 g sample of steam is slowly cooled from a temperature of $105.0\text{ }^{\circ}\text{C}$ to ice at a temperature of $-5.0\text{ }^{\circ}\text{C}$. How much heat is taken away from the steam to change it into the ice?

4) A calorimeter containing 64 g of water at an initial temperature of $24.0\text{ }^{\circ}\text{C}$ has 1.65 g of KOH added to it. The water temperature rises to $30.2\text{ }^{\circ}\text{C}$. How much heat was absorbed by the water?

5) What is the frequency of a wave that has $5.72 \times 10^{-25}\text{ J}$.

6) Draw a wave that is 5 wavelengths long. Label the amplitude, wavelength, crest and trough of the wave.

Answers: 1) 23.2 kJ 3) - 32 kJ 5) $8.63 \times 10^8\text{ Hz}$

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