

Heat Practice

1) $q = 1086.75 \text{ J}$
 $m = 15.75 \text{ g}$
 $C = ?$
 $\Delta T = 175.0^\circ\text{C}$
 $\quad - 25.00^\circ\text{C}$
 $\quad \hline 150.0^\circ\text{C}$

$$C = \frac{q}{m\Delta T} = \frac{1086.75 \text{ J}}{(15.75 \text{ g} \cdot 150^\circ\text{C})}$$

$$C = .46 \text{ J/g}^\circ\text{C} \Rightarrow \boxed{.4600 \text{ J/g}^\circ\text{C}}$$

2) $q = ?$
 $m = 10.0 \text{ g}$
 $C = .897 \text{ J/g}^\circ\text{C}$
 $\Delta T = 55.5^\circ\text{C}$
 $\quad - 22.2^\circ\text{C}$
 $\quad \hline 33.3^\circ\text{C}$

$$q = (10.0 \text{ g})(.897 \text{ J/g}^\circ\text{C})(33.3^\circ\text{C})$$

$$q = 298.701 \text{ J} \Rightarrow \boxed{299 \text{ J}}$$

3) $q = ?$
 $m = 100.0 \text{ g}$
 $C = 4.184 \text{ J/g}^\circ\text{C}$
 $\Delta T = 37.00^\circ\text{C}$
 $\quad - 4.00^\circ\text{C}$
 $\quad \hline 33.00^\circ\text{C}$

$$q = (100.0 \text{ g})(4.184 \text{ J/g}^\circ\text{C})(33.00^\circ\text{C})$$

$$q = 13807.2 \text{ J} \Rightarrow \boxed{13810 \text{ J}}$$

4) $q = -67500 \text{ J}$
 $m = 1500.0 \text{ g}$
 $C = ?$
 $\Delta T = 32.0^\circ\text{C}$
 $\quad - 57.1^\circ\text{C}$
 $\quad \hline -25.1^\circ\text{C}$

$$C = \frac{-67500 \text{ J}}{(1500.0 \text{ g} \cdot -25.1^\circ\text{C})}$$

$$C = 1.792828685 \text{ J/g}^\circ\text{C} \Rightarrow \boxed{1.79 \text{ J/g}^\circ\text{C}}$$

5) $q = ?$
 $m = 55.00 \text{ g}$
 $C = .705 \text{ J/g}^\circ\text{C}$
 $\Delta T = -15.00^\circ\text{C}$

$$q = (55.00 \text{ g})(.705 \text{ J/g}^\circ\text{C})(-15.00^\circ\text{C})$$

$$q = -581.625 \text{ J} \Rightarrow \boxed{-581.6 \text{ J}}$$

6) $q = 525 \text{ J}$
 $m = ?$
 $C = 2.093 \text{ J/g}^\circ\text{C}$
 $\Delta T = 3.000^\circ\text{C}$

$$m = \frac{525 \text{ J}}{(2.093 \text{ J/g}^\circ\text{C} \cdot 3.000^\circ\text{C})}$$

$$m = 83.61204013 \text{ g} \Rightarrow \boxed{83.6 \text{ g}}$$

7)

$$q = 66300 \text{ J}$$
$$m = 303 \text{ g}$$
$$c = .375 \text{ J/g}^\circ\text{C}$$
$$\Delta T = ?$$

$$\Delta T = \frac{66300 \text{ J}}{(303 \text{ g} \cdot .375 \text{ J/g}^\circ\text{C})}$$

$$\Delta T = 583498.3498^\circ\text{C} \Rightarrow 583000^\circ\text{C}$$

8)

$$q = -455 \text{ J}$$
$$m = 25.0 \text{ g}$$
$$c = ?$$
$$\Delta T = \begin{array}{r} 25.00^\circ\text{C} \\ -155.0^\circ\text{C} \\ \hline -130.0^\circ\text{C} \end{array}$$

$$c = \frac{-455 \text{ J}}{(25.0 \text{ g} \cdot -130.0^\circ\text{C})}$$

$$c = .140 \text{ J/g}^\circ\text{C}$$