



$$a.) \quad Q = M c_{\text{Hg}} \Delta T \Rightarrow \Delta T = \frac{Q}{M c_{\text{Hg}}}$$

$$c_{\text{Hg}} = 140 \frac{\text{J}}{\text{kgK}} \Rightarrow \Delta T = \underline{\underline{35.71 \text{ K (or } ^\circ\text{C)}}}$$

b.) Water, for $\Delta T = 35.71 \text{ K}$ & $M = 0.02 \text{ kg}$.

$$Q = M c_w \Delta T = \underline{\underline{2992. \text{ J}}}$$

$$c_w = 4190 \frac{\text{J}}{\text{kgK}}$$