Question 22239

The amount of energy, that water absorbs is connected with changes in temperature by this formula: $Q = c\,m\,\Delta T = c\,m\,(T_1 - T_0)$, where c is heat capacitance, m is the mass, and ΔT is the difference in temperature at the beginning and end. For water, c = 4200.

Hence, $300\,J = 4200\,\frac{J}{kg}\cdot\frac{225}{1000}\,kg\,(87{,}5 - T_0) \Rightarrow T_0 = 87{,}1825^o$.