Question #84635, Chemistry / General Chemistry

A 45 kg sample of water absorbs 303 kJ of heat.
If the water was initially at 24.4 °C, what is its final temperature?

Solution

$Q = C_w m\Delta T = C_w m(T_2 - T_1)$, where C_w – water heat capacity (4.186 kJ/kg×K)

$T_2 = \dfrac{Q}{C_w m} + T_1$

$T_2 = \dfrac{303}{4.186 \times 45} + 24.4 = 26$ (°C)

Answer

26°C is the final temperature of water.