101. The heat required to warm up to the melting point is $Q = cm\Delta T = (2220)(15.0)(20.0) = 666$ kJ, which is less than the total 7000 kJ added to the sample. Therefore, 6334 kJ remain for melting the block and warming the sample (now in the form of liquid water) further. Melting the block requires

$$Q = L_F m = (333\,\text{kJ/kg})(15.0\,\text{kg}) = 4995\ \text{kJ}$$

which leaves $6334 - 4995 = 1339$ kJ. The final temperature of the (liquid) water, which has $c = 4190\,\text{J/kg}\cdot\text{C}^\circ$, is found from

$$Q = cm\,(T_f - 0^\circ\text{C}) \implies T_f = \frac{1339 \times 10^3}{(4190)(15.0)} = 21.3^\circ\text{C}\ .$$