A liter of water is used to cool some electronics. If 1000 J of heat is given off by the electronics, by what temperature does the water increase? One liter of water has a mass of 1 kg and a specific heat of 4.184 J/(g°C).

Solution.

Relation between amount of heat and change of temperature of the body is the next:

$$Q = cm\Delta T$$

Where Q is amount of heat is transferred to the body; c is specific heat capacity, this is the property of the body (water in our case); m – mass of the body; ΔT – temperature change of the body.

So:

$$\Delta T = \frac{Q}{cm}$$

Numerically:

$$\Delta T = \frac{1000\,J}{4.184\,\frac{J}{g\cdot°C}\cdot 1000\,g} \approx 0.24\,°C$$

Answer: $\Delta T = 0.24\,°C$