

## Answer on Question #42480 – Physics – Molecular Physics|Thermodynamics

### Question.

What amount of heat is required to raise the temperature of 20 grams of water from 10°C to 30°C? The specific heat of water is 4.18 J/g°C.

Given:

$$m = 20 \text{ g}$$

$$T_1 = 10^\circ\text{C}$$

$$T_2 = 30^\circ\text{C}$$

$$c = 4.18 \frac{\text{J}}{\text{g} \cdot ^\circ\text{C}}$$

Find:

$$Q = ?$$

### Solution.

The known formula of transmission of heat for heating:

$$Q = cm(T_2 - T_1)$$

Calculate:

$$Q = 4.18 \cdot 20 \cdot 20 = 1672 \text{ J}$$

### Answer.

$$Q = cm(T_2 - T_1) = 1672 \text{ J}$$