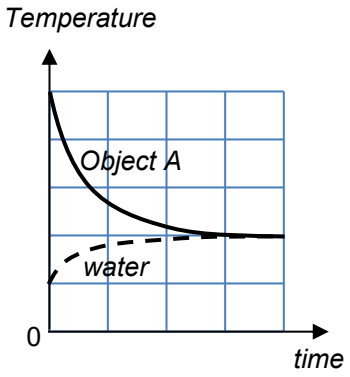
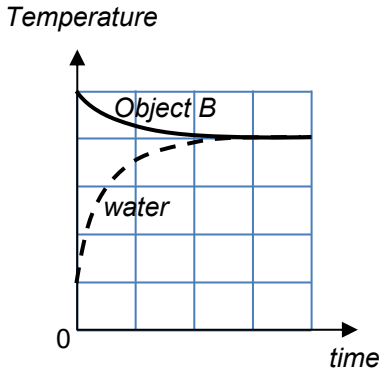
13 Object A is dropped into water inside a thermally insulated container of negligible heat capacity. The object and water are then allowed to come to thermal equilibrium.

The experiment is repeated with a different object, B. The two objects have the same mass and initial temperature, and the mass and initial temperature of the water are the same in the two experiments. For each of the experiments, the following graphs show the variation with time of the temperatures of the object and the water.





If c_A and c_B are the specific heat capacities of object A and object B respectively, what is the relationship between c_A and c_B ?

A $c_A = \frac{1}{9} c_B$ **B** $c_A = \frac{1}{3} c_B$ **C** $c_A = 3\, c_B$ **D** $c_A = 9\, c_B$