10 A polystyrene cup contains a mass of 130 g of water at 50 °C. A cube of ice of mass 20 g and temperature 0 °C is placed in the water. The water is stirred until the temperature is homogenous.

Assuming negligible heat loss to the cup and surroundings, what is the final temperature of the water?

specific heat capacity of water = 4.2×10^3 J kg^{-1} K^{-1}
specific latent heat of fusion of ice = 3.3×10^5 J kg^{-1}

A 3 °C

B 18 °C

C 33 °C

D 38 °C