what mass of steam at 100 C be passed into 8.40 kg of water at 30 c such that the final temperature of water is 80 c?(specific heat capacity of water is 4200 J/kg/c and specific latent heat of vapourisation of water is 22.5* 100000 J/kg.)

$L = 22.5 * 10^5 \frac{J}{kg}$
$c = 4200\, J/kg/c$

We can use equation of heat balance:
$\Delta Q_{steam} = \Delta Q_{water}$

$Q_{steam} = Lm_{steam}$
$Q_{water30} = cm_{water} * |30°C - 80°C|$

$Lm_{steam} = cm_{water} * |30°C - 80°C|$

$m_{steam} = \frac{cm_{water}}{L} 50°C = \frac{4200 * 8.4 * 50}{22.5 * 10^5} = 0.784kg$