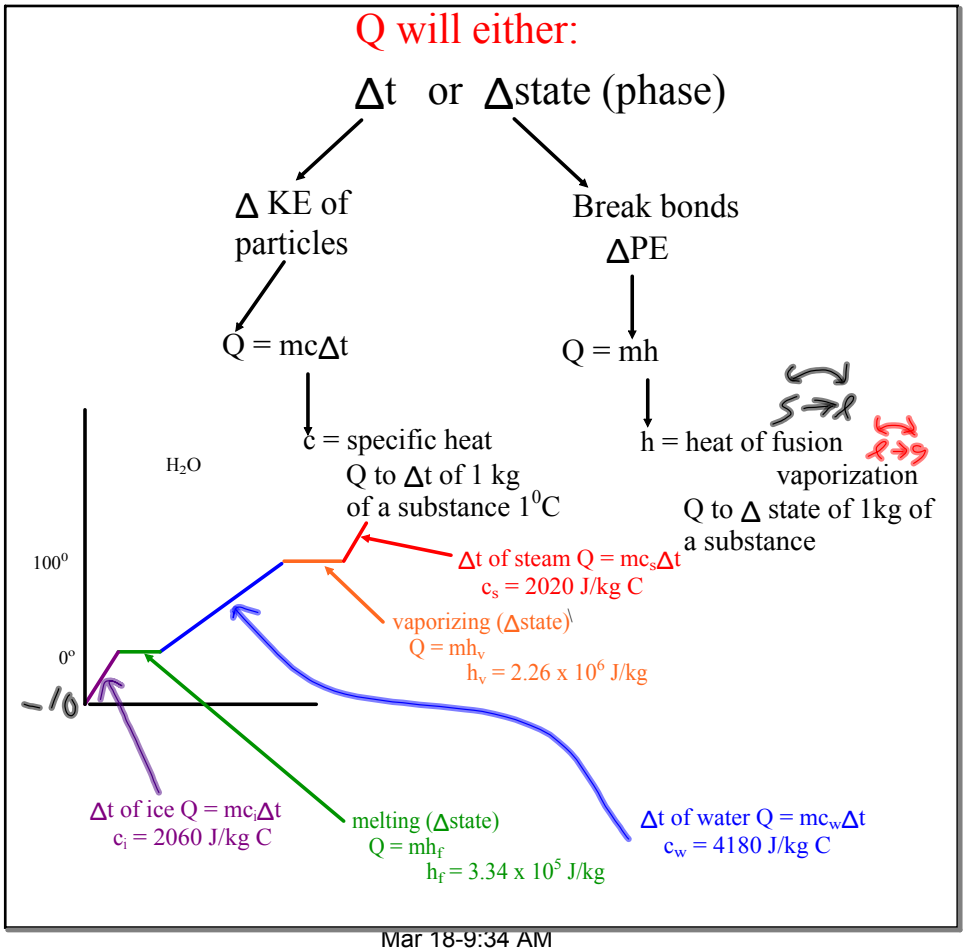
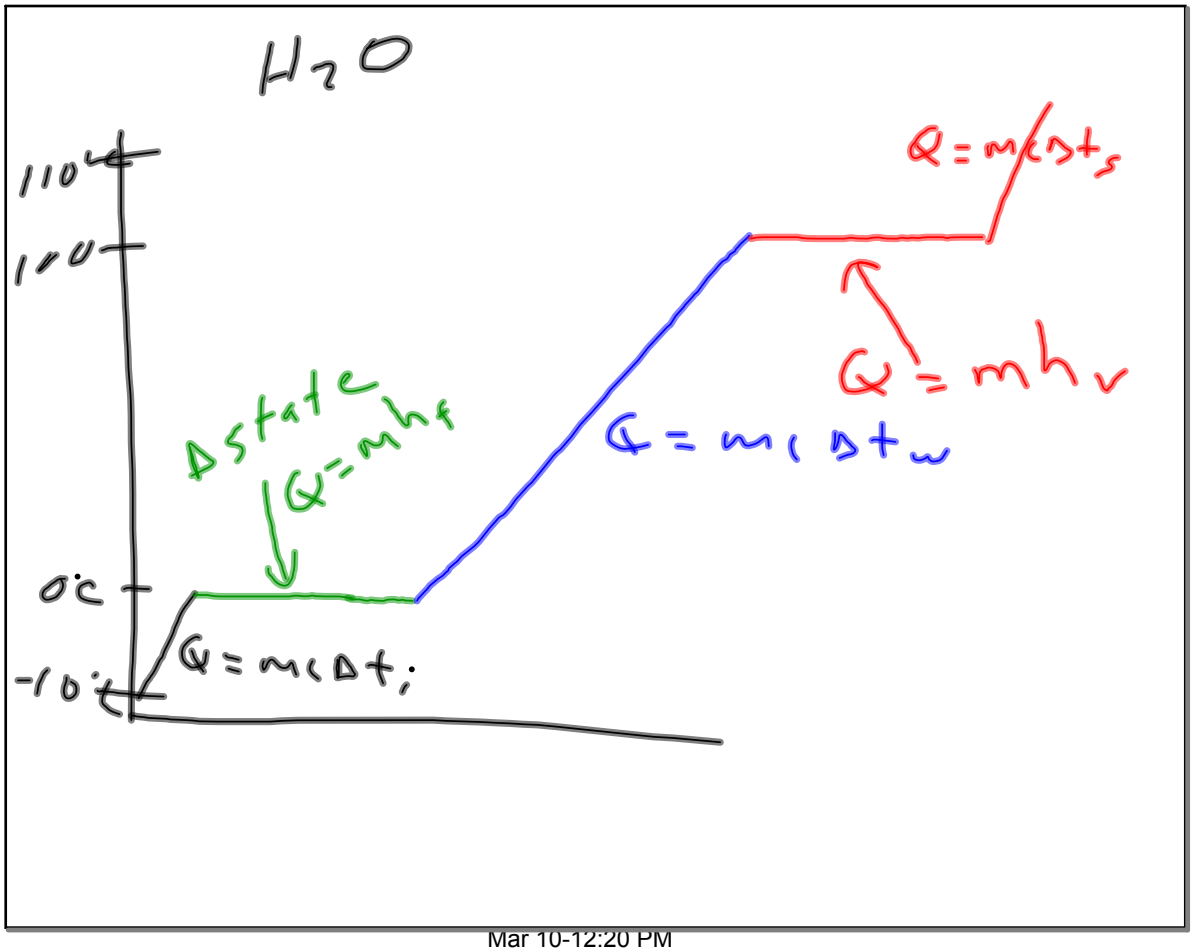


Mar 18-9:34 AM



Mar 10-12:20 PM

100.0 g of ice at -10.0° C is placed in 1.00 kg of water at 90.0° C. What is the final temperature of the mixture?

Mar 18-9:33 AM

100.0 g of ice at -10.0° C is placed in 1.00 kg of water at 90.0° C. What is the final temperature of the mixture?

$$Q_L + Q_g = 0$$

$$mc\Delta t_w + mc\Delta t_i + mh_f + mc\Delta t_{wi} = 0$$

$$mc\Delta t_w + mc\Delta t_{wi} = -mc\Delta t_i - mh_f$$

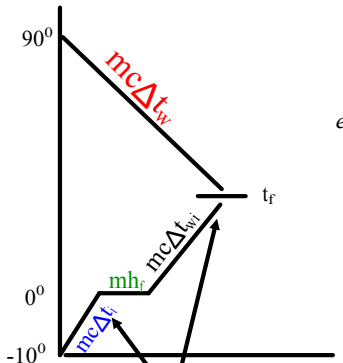
expand Δt

$$mct_{fw} - mct_{iw} + mct_{fwi} - mct_{iwi} = -mc\Delta t_i - mh_f$$

$$mct_{fw} + mct_{fwi} = -mc\Delta t_i - mh_f + mct_{iw} + mct_{iwi}$$

$$t_f(mc_w + mc_{wi}) = -mc\Delta t_i - mh_f + mct_{iw} + mct_{iwi}$$

$$t_f = \frac{-mc\Delta t_i - mh_f + mct_{iw} + mct_{iwi}}{(mc_w + mc_{wi})}$$



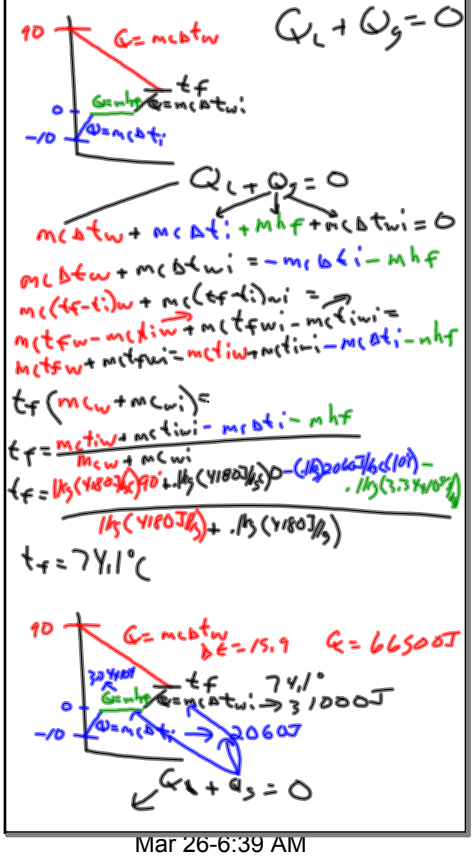
note how the t_f of the ice is different then the t_f of water that came from ice

$$t_f = \frac{-.10\ kg(2060\ J/kgC)10^oC - .10\ kg\ (3.34X10^5\ J/kg) + 1\ kg(4180\ J/kgC)90.0^oC) + .10\ kg(4180\ J/kgC)0^oC}{((1\ kg(4180\ J/kgC) + .10\ kg(4180\ J/kgC))}$$

$$t_f = 74.1^o\ C$$

Mar 26-7:26 AM

100.0 g of ice at -10.0° C is placed in 1.00 kg of water at 90.0° C. What is the final temperature of the mixture?

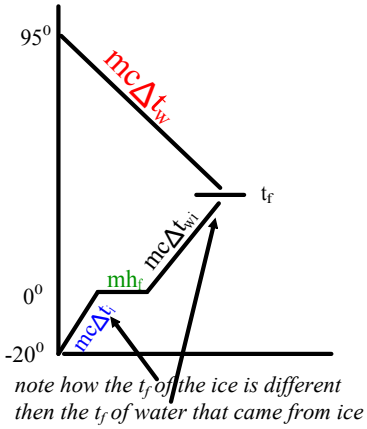


Mar 26-6:39 AM

A 150.0 g block of ice at -20.0°C is placed in 880.0 g of water at 95.0°C.
What is the final temperature of the mixture.

Mar 16-1:23 PM

A 150.0 g block of ice at -20.0°C is placed in 880.0 g of water at 95.0°C.
What is the final temperature of the mixture.



note how the t_f of the ice is different then the t_f of water that came from ice

$$Q_L + Q_g = 0$$

$$mc\Delta t_w + mc\Delta t_i + mh_f + mc\Delta t_{wi} = 0$$

$$mc\Delta t_w + mc\Delta t_{wi} = -mc\Delta t_i - mh_f$$

$$mct_{fw} - mct_{iw} + mct_{fwi} - mct_{iwi} = -mc\Delta t_i - mh_f$$

$$mct_{fw} + mct_{fwi} = -mc\Delta t_i - mh_f + mct_{iw} + mct_{iwi}$$

$$t_f(mc_w + mc_{wi}) = -mc\Delta t_i - mh_f + mct_{iw} + mct_{iwi}$$

$$t_f = \frac{-mc\Delta t_i - mh_f + mct_{iw} + mct_{iwi}}{(mc_w + mc_{wi})}$$

$$t_f = \frac{-.15\ kg(2060\ J/kgC)20^oC - .15\ kg\ (3.34X10^5\ J/kg) + .88\ kg(4180\ J/kgC)95^oC) + .15\ kg(4180\ J/kgC)0^oC}{((.88\ kg(4180\ J/kgC) + .15\ kg(4180\ J/kgC))}$$

$$t_f = 68.1^o\ C$$

Mar 26-7:23 AM

TE needed to change 1kg water from 0°C → 100°C

$$Q = mc\Delta t$$
$$Q = mc(t_f - t_i)$$
$$Q = 1kg\left(4180\ J/kg°C\right)(100°C - 0°C)$$
$$Q = 1kg(4180\ J/kg°C)\ 100°C$$
$$Q = 418{,}000\ J$$

Mar 17-11:28 AM

$P = \frac{Q}{t}$ $\quad t = \frac{Q}{P} = \frac{mc\Delta t_c}{P}$

$t_i = 19°C$ $\quad t = \frac{.175kg\,(3870J/kg°C)\,2}{25W}$

$t_f = 40°C$
$P = 25W$
$t = ?$
$c_c = 3870 J/kg°C$

$t = 5692$

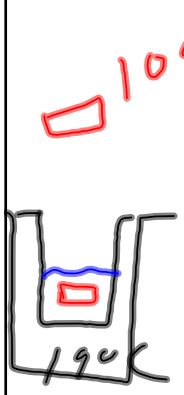
↳ 9.48 min

$m = 175 ml$

↳ $175g$

$1g = 1cm^3 = 1ml$

Mar 10-12:05 PM

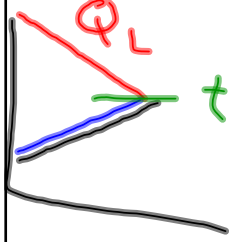


$Q_L + Q_g = 0$

$mc\Delta t_m + mc\Delta t_w + mc\Delta t_c = 0$

$m(t_f - t_i)_m + mc(t_f - t_i)_w + mc(t_f - t_i)_c$

100 $\quad 19°$ $\quad 19°$



Mar 10-12:12 PM