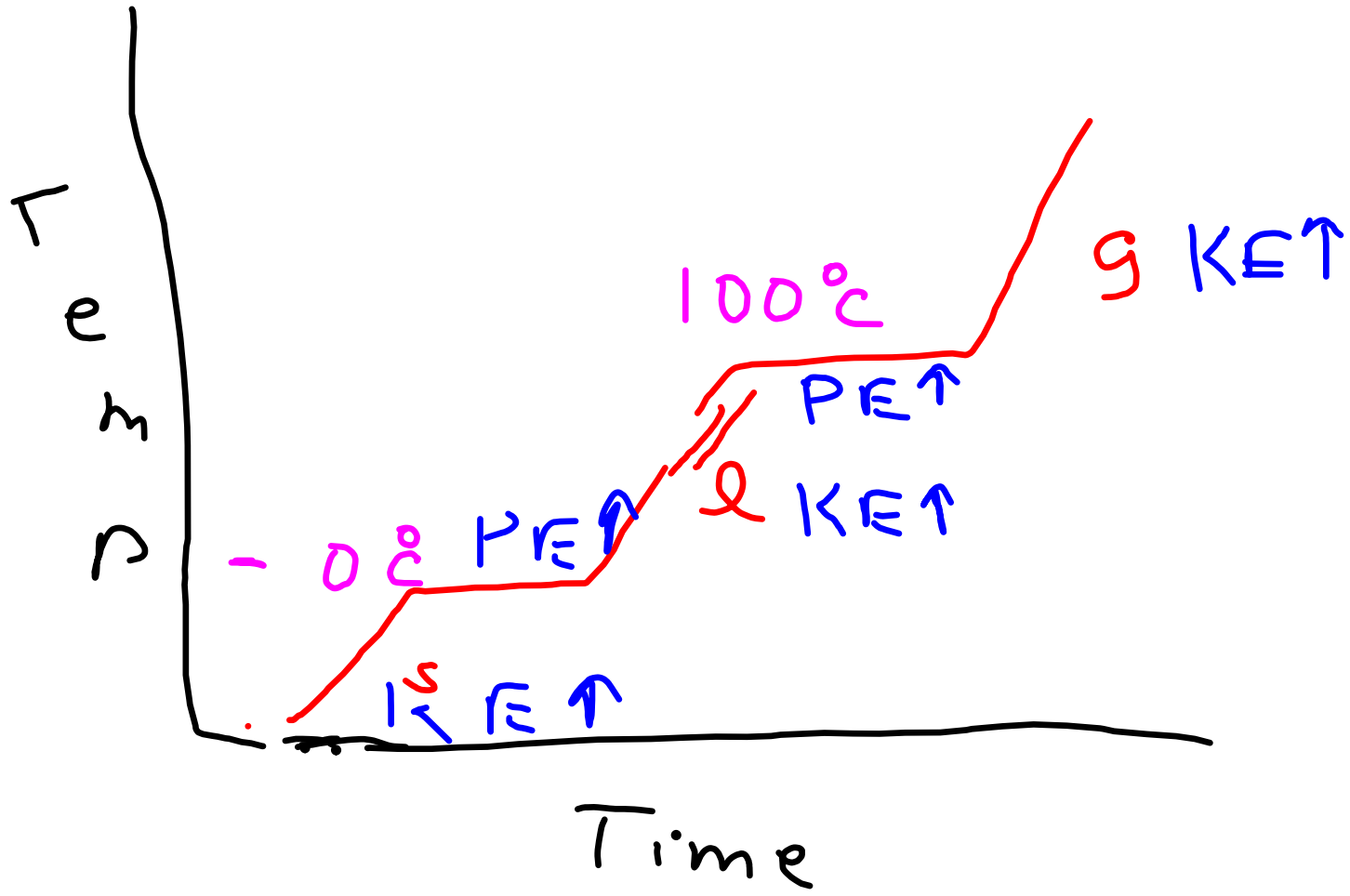
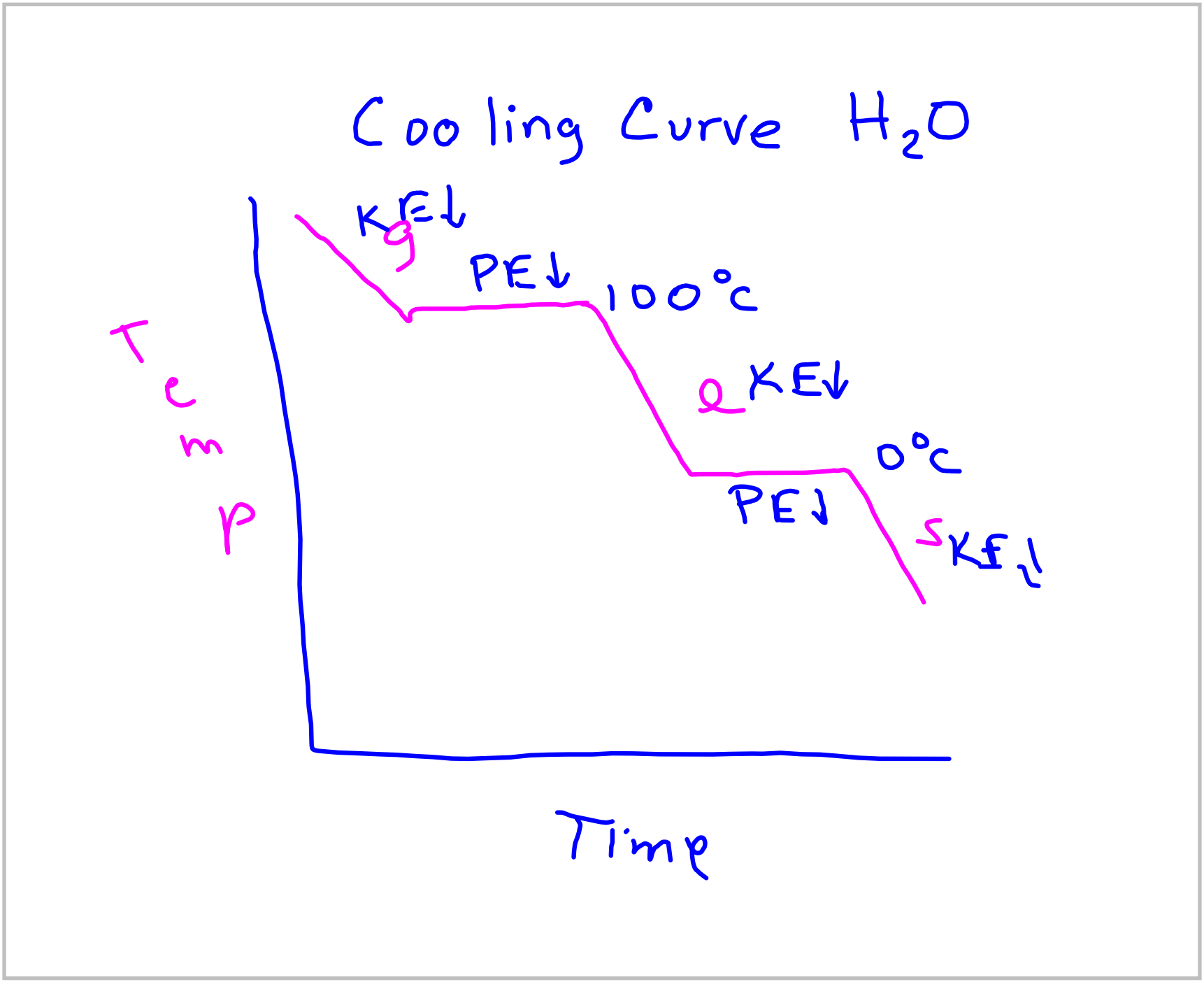
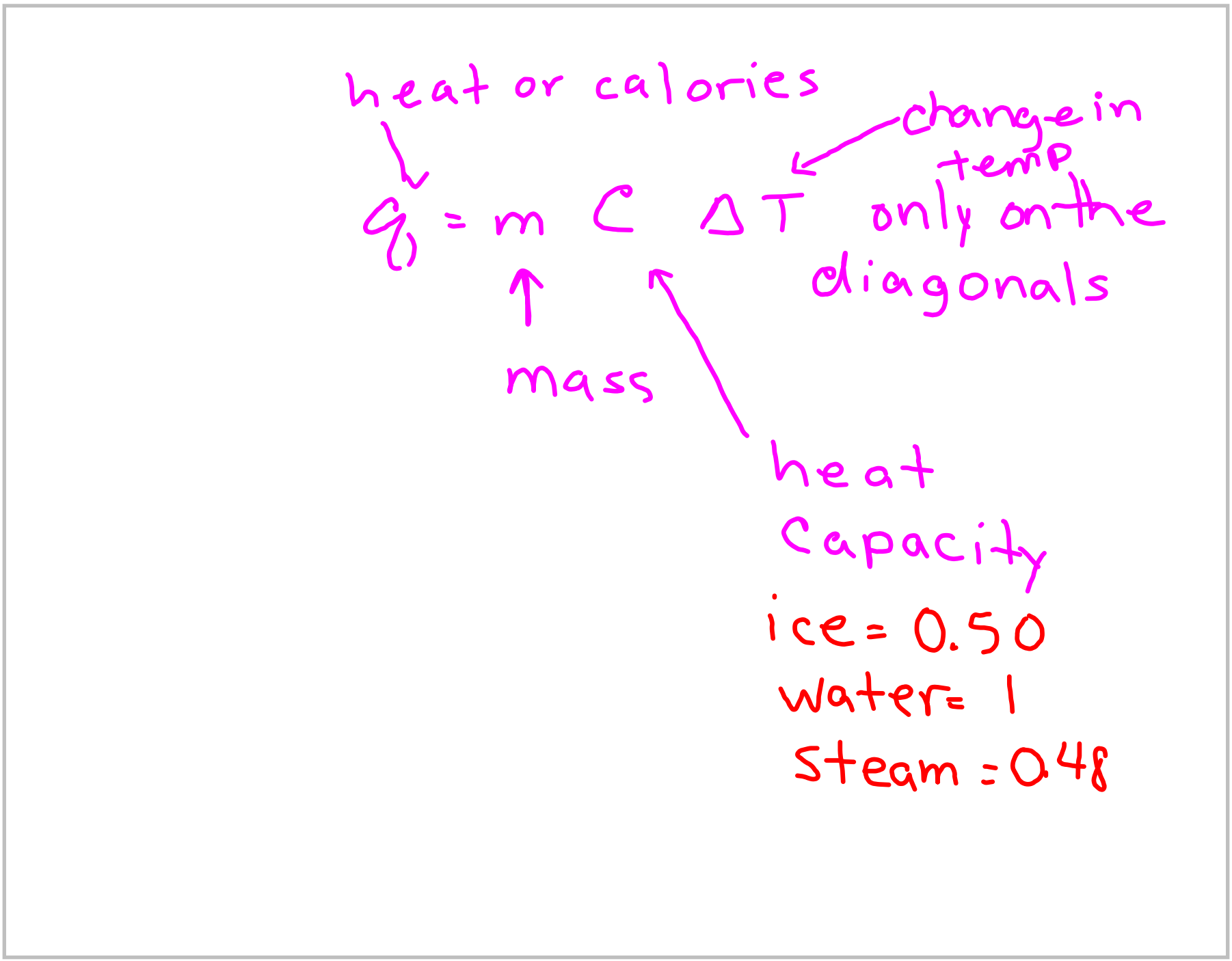
Heating Curve H_2O



Kinetic energy- energy of motion.

Potential energy- stored energy.


Cooling Curve H_2O
KE↓
PE↓
100°C
KE↓
0°C
PE↓
KE↓
Temp
Time


heat or calories
change in temp
$q = m\ C\ \Delta T$
only on the diagonals
mass
heat Capacity
ice = 0.50
water = 1
steam = 0.48

$q = m H_f$

H_f ← heat of fusion

plateau at 0°C

q ↑ heat or calories

m ↑ mass

$q = m H_v$

m ← mass

H_v ← heat of vaporization

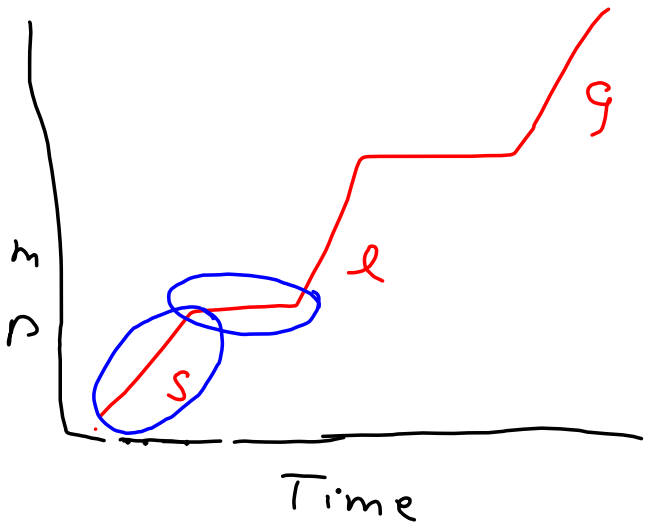
plateau at 100°C

q ↑ heat or calories

1. 3.2 g/mL

2. . 500 mL

Heating Curve H_2O



$q = mc\Delta T$

$= (28.9)(0.50)(44)$

$= 635.8$ cal

$q = mH_f$

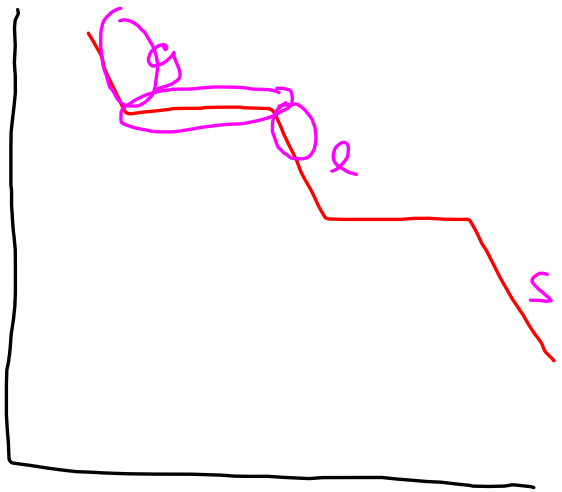
$= (28.9)(80.0)$

$= 2312$ cal

2947.8 cal

2900 cal

2.9×10^3 cal



$Q = m C \Delta T$

$= (250)(0.48)(39)$

$= 4680 \text{ cal}$

$Q = m H_v$

$= (250)(540)$

$= 135000 \text{ cal}$

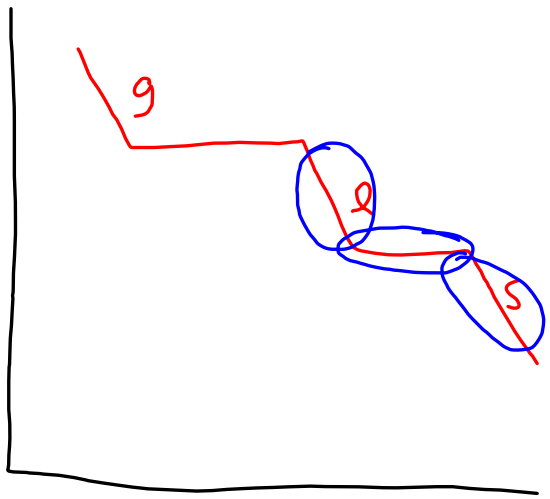
$Q = m C \Delta T$

$= (250)(1)(25)$

$= 6250 \text{ cal}$

145930 cal

$1.5 \times 10^5 \text{ cal}$



$q = m\ C\ \Delta T$

$= (800)(1)(98)$

$= 78400\ cal$

$q = m\ H_f$

$= (800)(80)$

$= 64000\ cal$

$q = m\ C\ \Delta T$

$= (800)(.5)(24)$

$= 9600\ cal$

$152000\ cal$

1. 2×10^5

2×10^5 $2 \times 10^5\ cal$

$200000\ cal$

1.

$$q = m\ C\ \Delta T$$

$$= (25.0)(0.1566)(63.3)$$

$$= 248\ cal$$

11.

$$q = m\ C\ \Delta T$$

$$= (250)(.0305)(190)$$

$$= 1448.75\ cal$$

$$= 1400\ cal$$

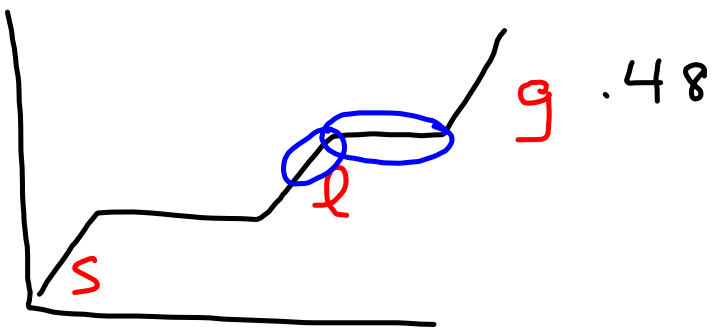
$$q = m\ C\ \Delta T$$

$$3480 = x\ (0.1057)(113)$$

$$\frac{3480}{11.9441} = \frac{x\ (11.9441)}{11.9441}$$

$$x = 291\ g$$

8.



.48

$q = m\ C\ \Delta T$

$= (4.5 \times 10^6)(1)(15)$

$= 6.75 \times 10^7 \text{ cal}$

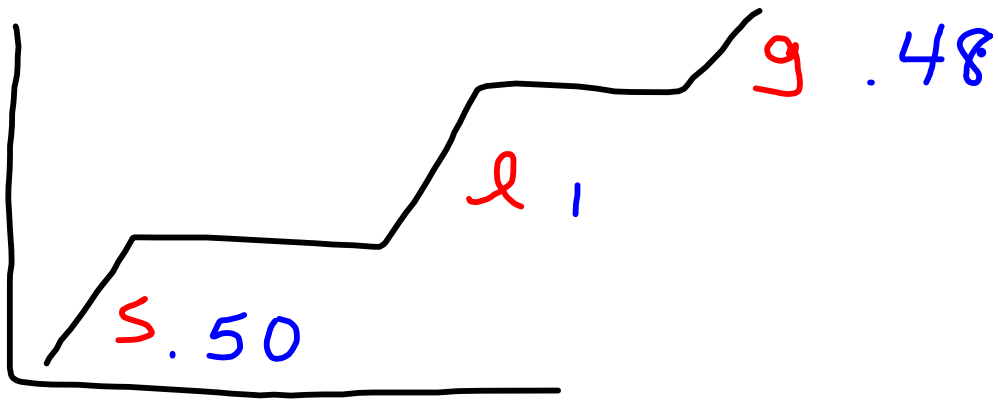
$q = m\ H_v$

$= (4.5 \times 10^6)(540.0)$

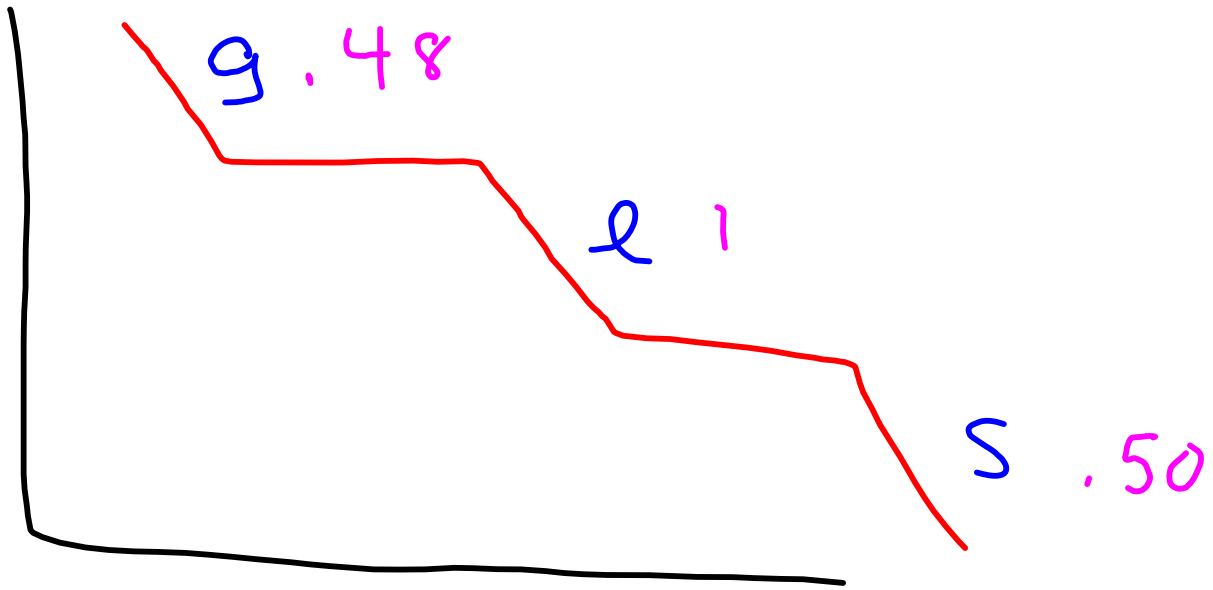
$= 2.43 \times 10^9 \text{ cal}$

$\frac{2.43 \times 10^9 \text{ cal}}{2.5 \times 10^9 \text{ cal}}$

$2.4 \mid 975 \times 10^9 \text{ cal}$



$q = m\,C\,\Delta T$



4. $q = m \quad C \quad \Delta T$

$$\frac{23000}{325} = \frac{(325)(1)\ x}{325}$$

$x = 70.7692°C$

change in temp

$$\begin{array}{r} 27.3 \\ +\ 70.7692 \\ \hline 98.0692 \end{array}$$

$98.1°C \qquad 98°C$