analysis

May 7, 2023

1 Modules

[ ]:
```
import pandas as pd
from sympy import *
```

2 Data

[ ]:
```
data = pd.read_csv("data.txt")
data=data.round()
data.index = ["practice-1", "practice-2"]
data
```

[ ]:

	Th(K)	Patm (mmHg)	Ta(K)	Vh(mL)	Vc(mL)
practice-1	361	563	287	310	69
practice-2	364	563	288	310	76

[ ]:
```
data_mean = data.mean().round(3)
data_mean = pd.DataFrame(
    {"mean-values": data_mean}
)
data_mean=data_mean.round(1)
data_mean
```

[ ]:

	mean-values
Th(K)	362.5
Patm (mmHg)	563.0
Ta(K)	287.5
Vh(mL)	310.0
Vc(mL)	72.5

3 $V_a = V_h - V_c$

[ ]:
```
Va_mean=data_mean.at["Vh(mL)","mean-values"] - data_mean.
↪at["Vc(mL)","mean-values"]
"Va = "+str( Va_mean.round(1) ) + " mL"
```

[ ]: 'Va = 237.5 mL'

4 $m_1 = \frac{V_h - V_a}{T_h - T_a}$

[ ]:
```
m_1_mean = ( data_mean.at[ "Vh(mL)","mean-values"   ] - Va_mean ) /(    ␣
 ↪data_mean.at[ "Th(K)","mean-values"   ]   -   data_mean.at[␣
 ↪"Ta(K)","mean-values"   ]   )

"m1 = " +str( m_1_mean.round(1) ) + " mL/K"
```

[ ]: 'm1 = 1.0 mL/K'

5 $m_2 = \frac{V_h}{T_h}$

[ ]:
```
m_2_mean = data_mean.at[ "Vh(mL)","mean-values"   ] /  data_mean.at[␣
 ↪"Th(K)","mean-values"   ]

"m2 = "+str( m_2_mean.round(1) ) + " mL/K"
```

[ ]: 'm2 = 0.9 mL/K'