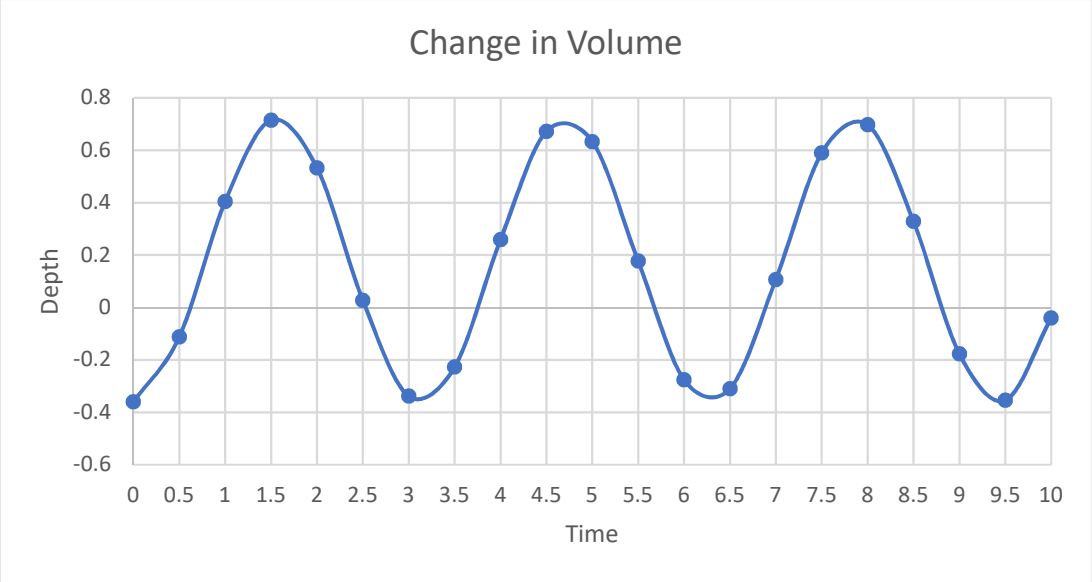
Ryan Fahrenkrug
MECH 105
Homework 1
8/25/2017

Problem 1

	Value	Units
A	1250	m^2
Q	450	m^3/d

1.1



1.2

t [d]	y
0	-0.36
0.5	-0.11176
1	0.404719
1.5	0.714596
2	0.532968
2.5	0.026822
3	-0.33849
3.5	-0.22711
4	0.25857
4.5	0.67201
5	0.633099
5.5	0.17761
6	-0.27568
6.5	-0.31002
7	0.106162
7.5	0.590231

8	0.697136
8.5	0.328588
9	-0.17657
9.5	-0.3539
10	-0.04036

1.3

The tank spends a majority of the time filling up. With the function being dependant on the triginomic function sine, the volume of the tank reaches either a peak or a trough every 1.5 seconds.

Problem 2

2.1

The tempiture of the body at the time of death would have been roughly 37 C°

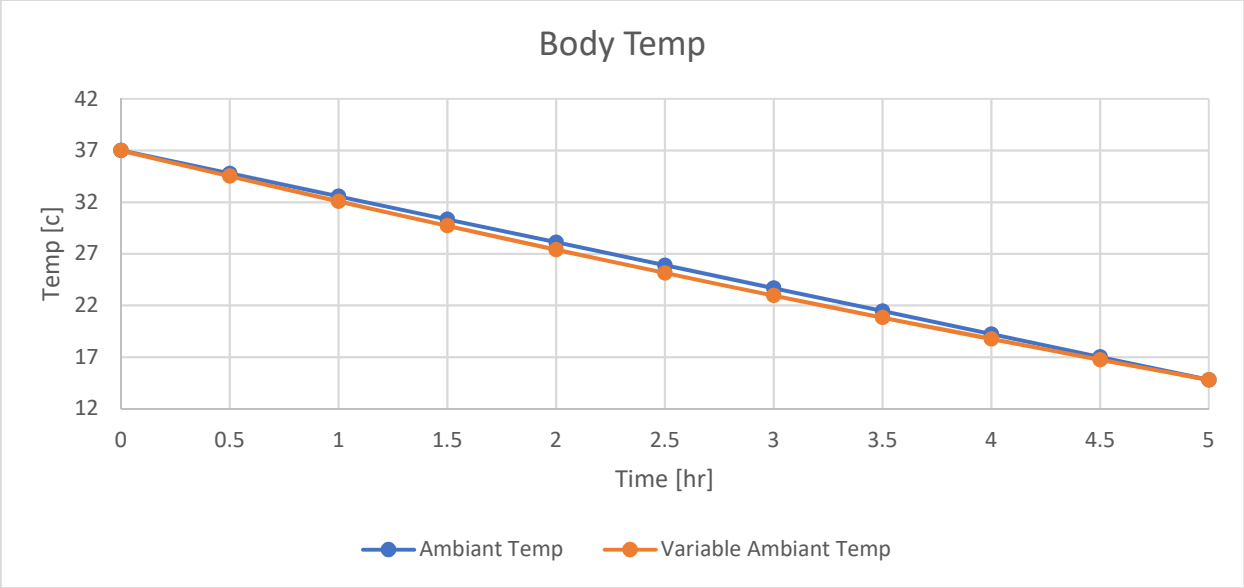
2.2

Time [t]	T-k(T-Ta)*t
0	37
0.5	34.78
1	32.56
1.5	30.34
2	28.12
2.5	25.9
3	23.68
3.5	21.46
4	19.24
4.5	17.02
5	14.8

2.3

Time [t]	Ta [c]	T-k(T-Ta)*t
0	-5	37
0.5	-4.5	34.51
1	-4	32.08
1.5	-3.5	29.71
2	-3	27.4
2.5	-2.5	25.15
3	-2	22.96
3.5	-1.5	20.83
4	-1	18.76
4.5	-0.5	16.75
5	0	14.8

2.4


Body Temp
Temp [c]
42
37
32
27
22
17
12
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Time [hr]
Ambiant Temp
Variable Ambiant Temp