

1. Insert your data points in the blue cells.
2. Column C-F should be automatically calculated.
3. If you have more than 100 data points, you will need to copy 1
4. Delete all the extra rows at the bottom if you have less than 1
5. You can then adjust your graph to focus on the desired region

V, mL	pH	Approximation 1st derivative		
		ΔV ("dx")	ΔpH ("dx")	$\Delta pH/\Delta V$ ("dy/dx")
0	4.392			
1.01	4.626	1.01	0.23	0.23
1.7	4.752	0.69	0.13	0.18
3.14	4.941	1.44	0.19	0.13
4.18	5.031	1.04	0.09	0.09
5	5.112	0.82	0.08	0.10
5.99	5.211	0.99	0.10	0.10
7.09	5.31	1.10	0.10	0.09
8.04	5.4	0.95	0.09	0.09
9.27	5.508	1.23	0.11	0.09
10.18	5.598	0.91	0.09	0.10
10.97	5.688	0.79	0.09	0.11
11.91	5.796	0.94	0.11	0.11
12.54	5.886	0.63	0.09	0.14
13.17	5.994	0.63	0.11	0.17
13.44	6.048	0.27	0.05	0.20
13.99	6.165	0.55	0.12	0.21
14.48	6.336	0.49	0.17	0.35
14.58	6.372	0.10	0.04	0.36
14.68	6.426	0.10	0.05	0.54
14.79	6.48	0.11	0.05	0.49
14.88	6.507	0.09	0.03	0.30
14.99	6.588	0.11	0.08	0.74
15.08	6.678	0.09	0.09	1.00
15.19	6.795	0.11	0.12	1.06
15.29	6.957	0.10	0.16	1.62
15.39	7.218	0.10	0.26	2.61
15.49	7.66	0.10	0.44	4.41
15.60	8.45	0.11	0.79	7.20
15.69	8.77	0.09	0.32	3.50
15.80	8.99	0.11	0.23	2.05
15.88	9.13	0.08	0.14	1.69
15.99	9.24	0.11	0.12	1.06
16.08	9.32	0.09	0.07	0.80
16.17	9.40	0.09	0.08	0.90

16.27	9.47	0.10	0.07	0.72
16.38	9.51	0.11	0.04	0.41
16.49	9.56	0.11	0.04	0.41
16.58	9.60	0.09	0.04	0.50
16.68	9.64	0.10	0.04	0.36
17.40	9.82	0.72	0.18	0.25
18.01	9.93	0.61	0.11	0.18
19.04	10.04	1.03	0.12	0.11
20.03	10.13	0.99	0.09	0.09
21.06	10.20	1.03	0.06	0.06
22.08	10.25	1.02	0.05	0.05
26.02	10.40	3.94	0.15	0.04
31.98	10.53	5.96	0.13	0.02

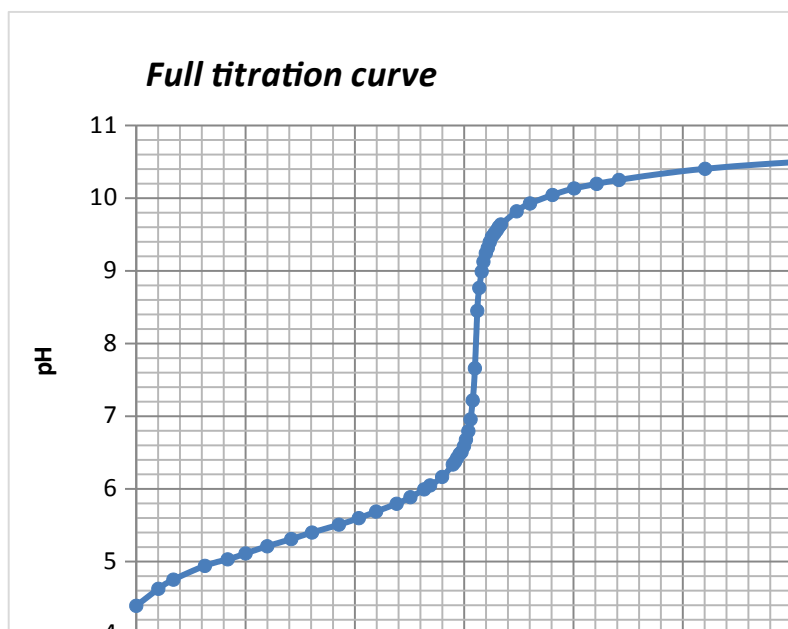
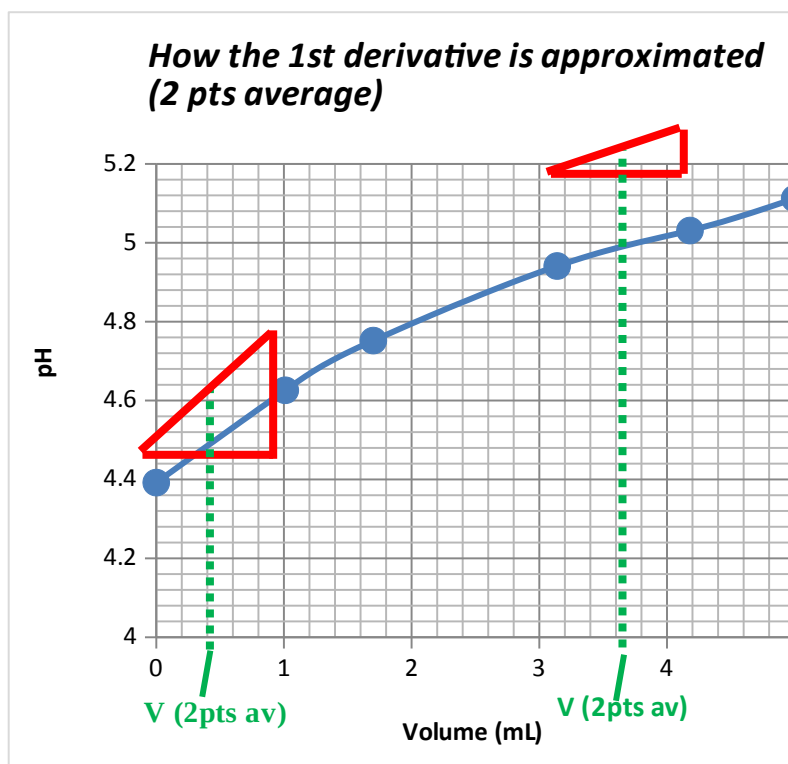
the equations in the extra cells.

00 data points (otherwise, you'll have a lot of 0;0 data points in your graph)
(zoom in by changing the horizontal axis minimum and maximum value)

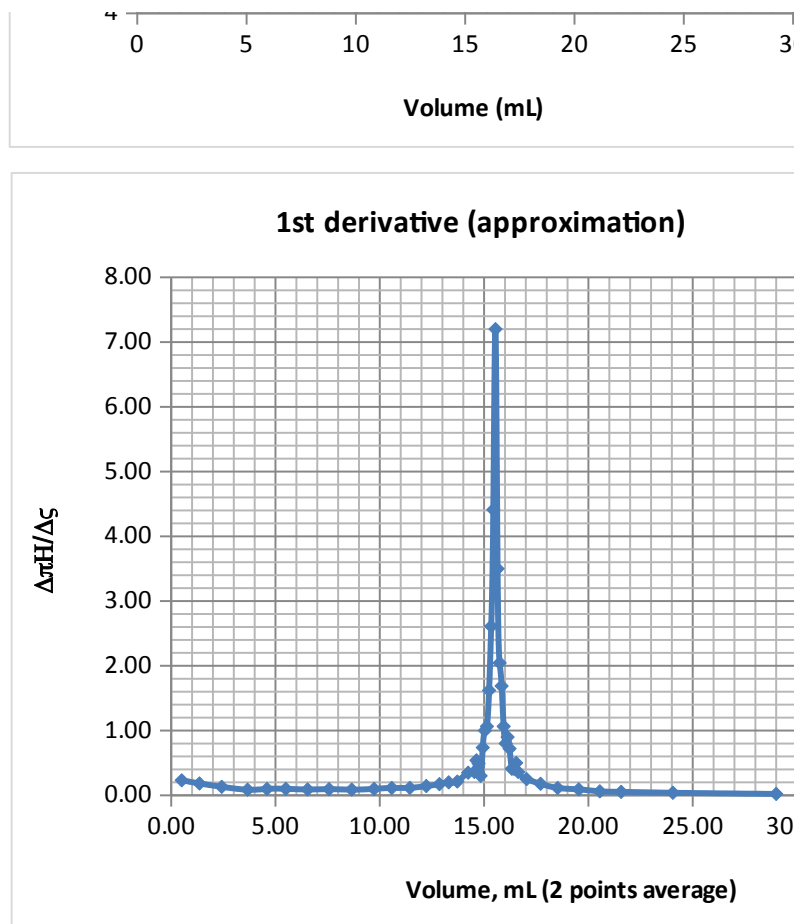
"x" axis of 1st derivative plot

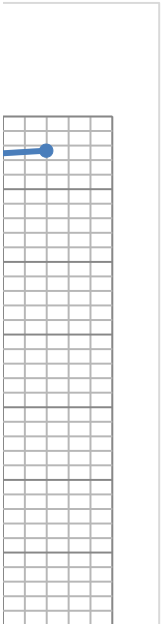
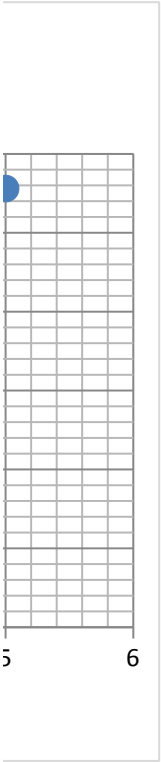
V (2pts average)

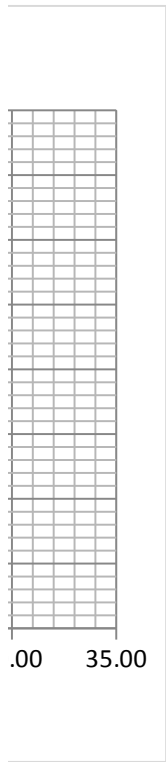
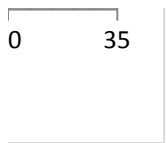
0.51
1.36
2.42
3.66
4.59
5.50
6.54
7.57
8.66
9.73
10.58
11.44
12.23
12.86
13.31
13.72
14.24
14.53
14.63
14.74
14.84
14.94
15.04
15.14
15.24
15.34
15.44
15.55
15.65
15.75
15.84
15.94
16.04
16.13



16.22
16.33
16.44
16.54
16.63
17.04
17.71
18.53
19.54
20.55
21.57
24.05
29.00







An unknown acid potentiometric titration for in-class analysis

Concentration of NaOH
0.1488 M

Visual Endpoint
14.70 mL

pH of RO water
6.99

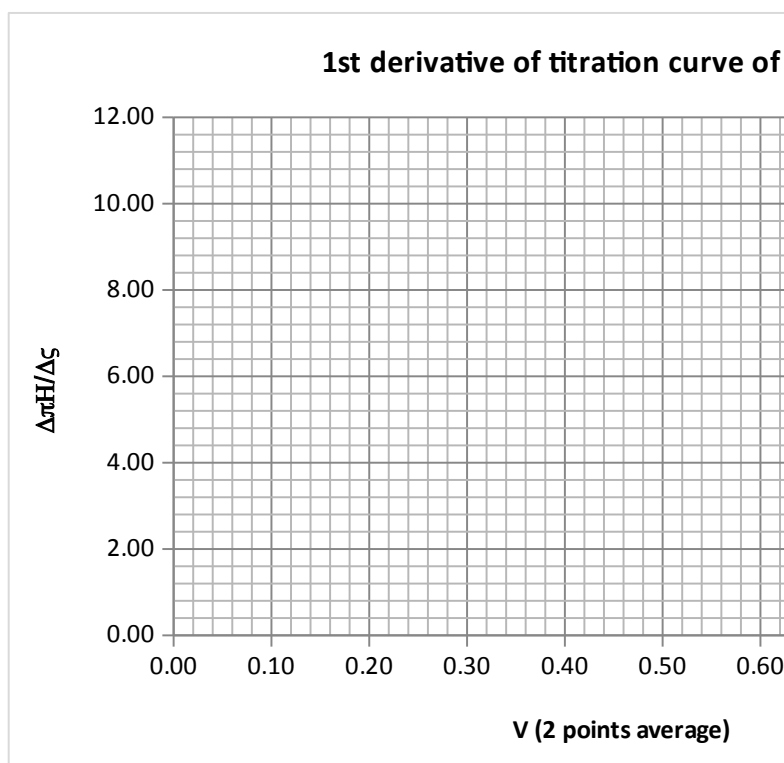
Volumn of NaOH (mL)	pH
0.00	3.16
2.00	3.71
4.00	4.11
6.00	4.40
8.00	4.66
9.01	4.79
10.00	4.93
11.00	5.09
12.00	5.28
12.50	5.40
13.01	5.56
13.50	5.75
13.75	5.94
14.18	6.22
14.42	6.70
14.70	9.57
14.96	10.42
15.21	10.77
15.43	10.95
15.87	11.15
16.04	11.21
16.50	11.33
17.00	11.42
17.51	11.51
18.00	11.56
19.00	11.67
20.00	11.75
21.00	11.81
23.01	11.91
25.00	11.99
27.00	12.05
29.00	12.10
31.00	12.15
33.01	12.19
35.00	12.22
37.00	12.26
39.09	12.29
41.10	12.31
43.00	12.34
45.02	12.36
47.00	12.38
49.03	12.40

[illegible]

[illegible]

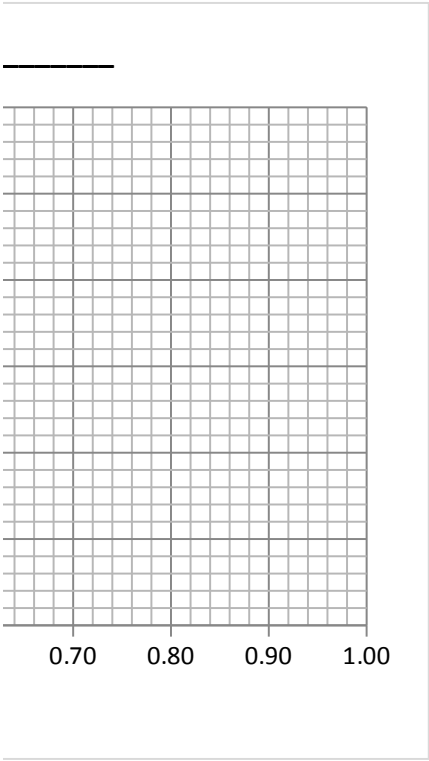
**00 data points (otherwise, you'll have a lot of 0;0 data points in your graph)
(zoom in by changing the horizontal axis minimum and maximum value)**

V (2pts average)



[illegible]

[illegible]



Data Set #6 (Unknown acid #6)

Concentration of NaOH
0.1488 M

Visual Endpoint
16.79 mL

pH of RO water
6.99

Volumn of NaOH (mL)	pH
0.00	2.77
1.98	2.98
4.17	3.22
6.00	3.42
8.00	3.61
10.03	3.82
10.51	3.87
11.48	3.99
12.53	4.13
13.54	4.29
13.99	4.38
14.48	4.48
14.98	4.62
15.51	4.82
15.78	4.95
16.04	5.12
16.28	5.35
16.50	5.78
16.67	6.95
16.99	10.15
17.28	10.64
17.50	10.89
18.01	11.17
18.50	11.34
19.16	11.46
19.54	11.55
20.56	11.68
21.46	11.77
22.51	11.86
24.54	11.97
26.52	12.05
28.47	12.13
30.51	12.18
32.55	12.23
34.49	12.27
36.50	12.31
38.48	12.34
40.54	12.37
42.54	12.39
44.55	12.41
46.51	12.43
48.48	12.45

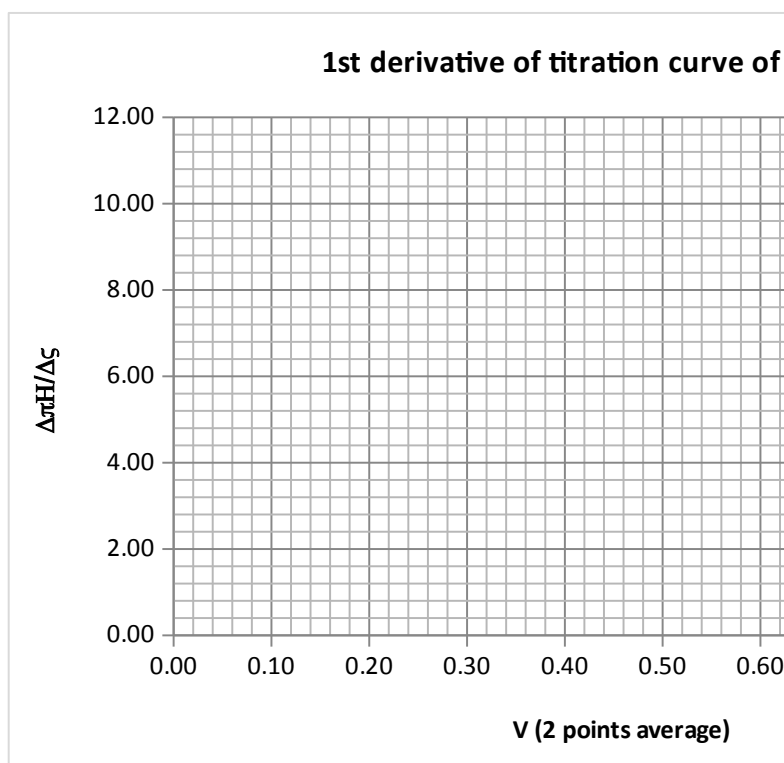
49.50

12.46

[illegible]

**00 data points (otherwise, you'll have a lot of 0;0 data points in your graph)
(zoom in by changing the horizontal axis minimum and maximum value)**

V (2pts average)



[illegible]

[illegible]

