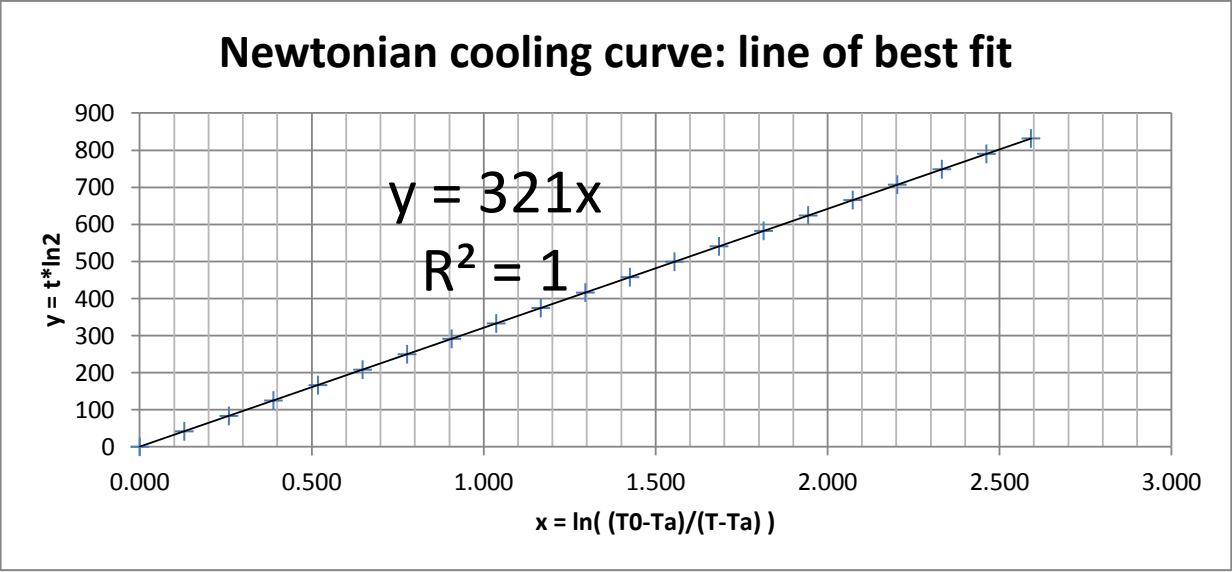
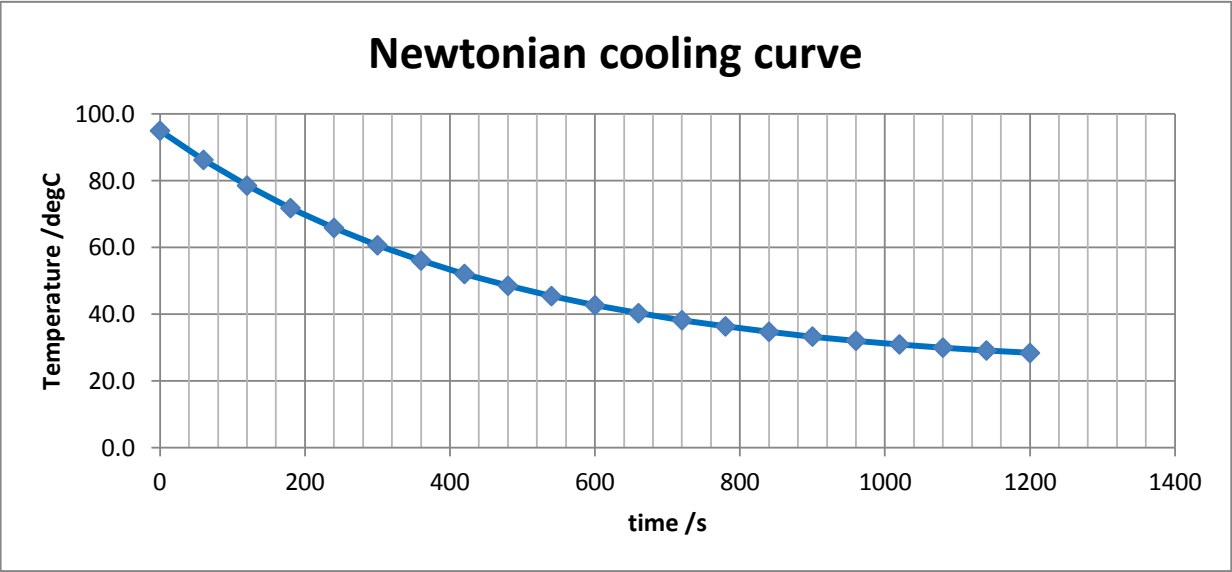


Newton Cooling example

Ambient temperature /degC	23
Initial temperature /deg C	95
time constant /s	321

t /s	T /degC	y = t*ln2	x = ln((T0-Ta)/(T-Ta))
0	95.0	0	0.000
60	86.3	42	0.130
120	78.6	83	0.259
180	71.8	125	0.389
240	65.9	166	0.518
300	60.7	208	0.648
360	56.1	250	0.777
420	52.1	291	0.907
480	48.5	333	1.036
540	45.4	374	1.166
600	42.7	416	1.296
660	40.3	457	1.425
720	38.2	499	1.555
780	36.4	541	1.684
840	34.7	582	1.814
900	33.3	624	1.943
960	32.1	665	2.073
1020	31.0	707	2.203
1080	30.0	749	2.332
1140	29.1	790	2.462
1200	28.4	832	2.591



$$T = T_a + (T_0 - T_a)e^{-\ln 2 \times t / \tau}$$
$$\ln \left(\frac{T - T_a}{T_0 - T_a} \right) = -\ln 2 \times t / \tau$$
$$\underbrace{\tau \ln \left(\frac{T_0 - T_a}{T - T_a} \right)}_x = \underbrace{\ln 2 \times t}_y$$