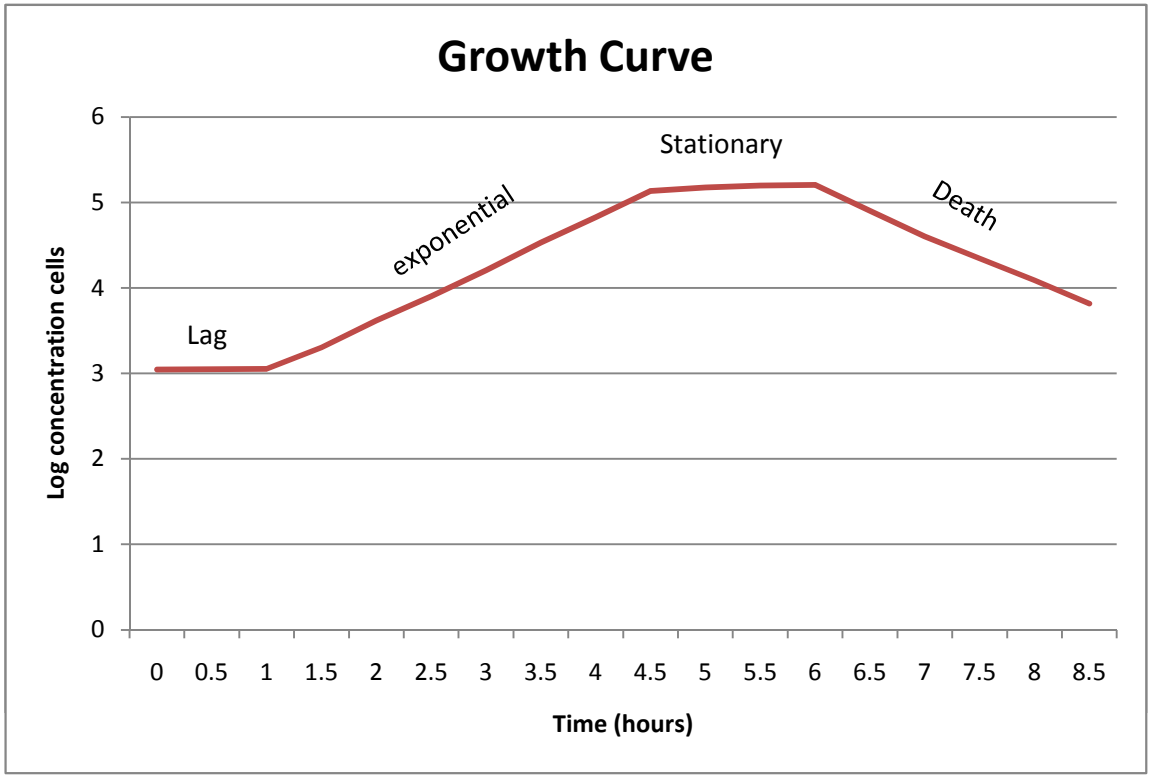
Time (hours)	Log Cells	Arithmetic Number (cells/ml)
0	3.04571	1111
0.5	3.04922	1120
1	3.05115	1125
1.5	3.30211	2005
2	3.61909	4160
2.5	3.90363	8010
3	4.20412	16000
3.5	4.53148	34000
4	4.82607	67000
4.5	5.13418	136200
5	5.17609	150000
5.5	5.1959	156999
6	5.20412	160000
6.5	4.90309	80000
7	4.60424	40201
7.5	4.34242	22000
8	4.09149	12345
8.5	3.81617	6549



#4 and5 Log phase begins at 1 hour (bottom of line) with 1,125 cells/ml and it ends at 4.5 hours (top of line) with 136,200 cells/ml.

#6 n=3.3(log N- log No) n=3.3 (5.13418-3.05115) n= 6.873981 generations

#7 g=t/n t=3.5 hoursX 60minutes/hour t= 210 minutes
g=210minutes/6.873981 g= 30.54998 minutes/generation

#8 If some of the exponentially growing culture were transferred to a new media under new conditions the culture would return to LAG phase Lag phase is the time it takes for the culture to adjust to the new conditions. It will starting expressing new enzymes to deal with growth under those new conditions. It will not remain in exponential phase.

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