Calculating Geometric Mean for E. coli Counts

1. Using the data below, calculate the monthly average geometric mean:

April 1	34
April 3	90
April 8	66
April 9	22
April 15	85
April 17	30
April 22	101
April 23	93
April 28	51
April 30	25

2. Using the data below, calculate the monthly average geometric mean:

June 1	89
June 2	44
June 3	0
June 8	14
June 9	134
June 10	267
June 15	78
June 16	0
June 17	111
June 22	42
June 23	219
June 24	67
June 29	405
June 30	99

3. Using the data below, calculate the monthly average geometric mean:

July 4	389
July 5	244
July 6	TNTC
July 11	614
July 12	371
July 13	117
July 18	TNTC
July 19	300
July 20	223
July 25	146
July 26	370
July 27	267

There are special requirements for TNTC reporting on the DMR. Please see EPA's DMR instructions.

4. Using the data below, calculate the monthly average geometric mean:

November 2	<10
November 9	<10
November 16	0
November 25	<10

1. Answer

	Log
April 1	1.531478917
April 3	1.954242509
April 8	1.819543936
April 9	1.342422681
April 15	1.929418926
April 17	1.477121255
April 22	2.004321374
April 23	1.968482949
April 28	1.707570176
April 30	1.397940009
Total	17.13254273

$$\frac{17.13254273}{10} = 1.713254273$$ antilog = 51.67 cts/100 ml

2. Answer: (Convert all zeros to "1")

	Log
June 1	1.949390007
June 2	1.643452676
June 3	0
June 8	1.146128036
June 9	2.127104798
June 10	2.426511261
June 15	1.892094603
June 16	0
June 17	2.045322979
June 22	1.62324929
June 23	2.340444115
June 24	1.826074803
June 29	2.607455023
June 30	1.995635195
Total	23.662286279

$$\frac{23.662286279}{14} = 1.687347342$$ antilog = 48 cts/100 ml

3. Answer:

July 4	2.589949601
July 5	2.387389826
July 6	TNTC*
July 11	2.788168371
July 12	2.56937391
July 13	2.068185862
July 18	TNTC*
July 19	2.477121255
July 20	2.348304863
July 25	2.164352856
July 26	2.568201724
July 27	2.426511261
Total	24.38755953

$$\frac{24.38755953}{10} = 2.438755953 \quad \text{antilog} = 274.6 \text{ cts/100 ml}$$

*Note: To calculate the geometric means, discard the TNTC value(s) and use only the other test results to calculate the monthly and weekly geometric means.

If you have a value that is too numerous to count 'TNTC', write 'TNTC' or 'T' in the daily maximum block and record the exceedance(s) in the No. of Ex. block. Submit the number of TNTC for the month, including dilutions used in each test, and how it was resolved.

4. Answer: (Convert all zeros to "1" and drop any "<" symbols)

	Log
November 2	1
November 9	1
November 16	0
November 25	1
Total	3.0

$$\frac{3.0}{4} = 0.75 \quad \text{antilog} = <5 \text{ cts/100 ml}$$