Estimathon®

Northern New Mexico College
A Math Teachers' Circle K-6 Workshop, Summer 2018

Instructions: Estimate each of the following with an interval of the form [*n*, 5*n*] for some *n*.

No electronic devices are permitted! You may ask for clarification on anything you think is ambiguous; we may choose not to provide any clarification.

1. The total number of points scored by the University of New Mexico Lobos basketball team during the 2017-18 season.[1]

2. The quantity $\sqrt[100]{2} - 1$ (that is, the positive 100th root of 2, minus 1).

3. The total number of Twitter followers of Bill Gates (@BillGates) at 8:08 PM Mountain Time on 7/10/2018.

4. The number of positive prime integers less than 1,000,000.

5. The number of digits in 2018! (that is, 2018 factorial).

6. The fifth-smallest perfect number. (A **perfect number** is a positive integer equal to the sum of its proper divisors, meaning its positive integer divisors other than the number itself. The smallest perfect number is 6=1+2+3.)

7. The number of tons of chile produced by New Mexico in 2017.[2]

8. The 60th Fibonacci number. (Recall that 1 and 1 are the first two Fibonacci numbers, and each Fibonacci number after the first two is the sum of the previous two Fibonacci numbers.)

9. The total number of guests of the 2017 Albuquerque International Balloon Fiesta® .[3]

10. The least common multiple of A, B, and C, where A, B, and C are integers between 1 and 100 inclusive selected by Google's random-number generator yesterday.

Acknowledgement: The rules of the original game and some of the problems are due to Andy Niedermaier of Jane Street Capital. Revised rules and additional problems due to David Patrick of the San Diego Math Teachers' Circle. "Estimathon" is a registered trademark of Jane Street Capital.

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[1] According to ESPN.
[2] According to the USDA's 2017 New Mexico Chile Production News Release
[3] According to the Balloon Fiesta® 's Economic Impact & Guest Research Report.