

Giving Meaning to Large Numbers

Physics and Mathematics of Sustainable Energy

Tuesday and Wednesday, September 14 and 15, 2021

College of the Atlantic

The goal of this part of the lab is to explore several techniques for giving meaning to very large numbers.

These questions explore a number of different ways to make large numbers relatable and understandable.

1. Visualizing numbers

- (a) Draw a number line from 0 to 10. On that number line, represent the numbers 1, 2, and 5.
- (b) Draw a number line from 0 to 1000. On that number line, represent the numbers 10, 100, and 500.
- (c) Draw a number line from 0 to one billion. On that number line, represent the numbers one million, two million, and 10 million.

2. Time....

- (a) How many days are in a million seconds?
- (b) How many years are in a billion seconds?
- (c) How many years are in a trillion seconds?

3. The 2018 US national budget is around 4.4 trillion dollars. Included in this is 886 billion in military spending. US foreign aid (non-military) is around 33 billion.

- (a) Convert all these numbers to per person.
- (b) Briefly discuss the relative size of these numbers.

4. The net worth of Jeff Bezos, the chairman of Amazon, is 185 billion dollars. Amazon was founded 27 years ago. At what rate, in dollars per second, did Bezos accumulate wealth over these 27 years?

5. Repeat the above question but for a wealthy person from the US who might have a net worth of one million dollars after 30 years of work.