

Problem Set

1. There are approximately 7.5×10^{18} grains of sand on Earth. There are approximately 7×10^{27} atoms in an average human body. Are there more grains of sand on Earth or atoms in an average human body? How do you know?
2. About how many times more atoms are in a human body compared to grains of sand on Earth?
3. Suppose the geographic areas of California and the U.S. are 1.637×10^5 and 3.794×10^6 sq. mi., respectively. California's population (as of 2012) is approximately 3.804×10^7 people. If population were proportional to area, what would be the U.S. population?
4. The actual population of the U.S. (as of 2012) is approximately 3.14×10^8 . How does the population density of California (i.e., the number of people per square mile) compare with the population density of the U.S.?