

Homework #1

Due: 8/20/20

1. (20) Estimate how many nanoparticles (10 nm in diameter) could theoretically fit into a human cell. State your assumptions.
2. (20) Estimate the number of nanoparticles in a 2 mg dose of gold nanoparticles that are 10 nm in diameter. State your assumptions.
3. (20) Calculate and plot a curve for the specific surface area vs. diameter of (a) gold and (b) SiO₂ spherical nanoparticles.
4. (40) Find a newspaper or magazine article from the popular press that raises toxicity concerns with nanoparticles used in consumer, industrial or healthcare products. Investigate the science behind the article claims including at least 3 relevant scientific journal articles. In your opinion, does the article provide outstanding investigative reporting worthy of a Pulitzer Prize, "fake news," or something in between?! Defend your support or criticism of the author's claims in 500-1000 words.