

How big would a person be in “MICROSPACE”?

As illustrated on page 236 of Chapter 7U.1 of the readings for “Light, the Universe, and Everything”, Microspace is an imaginary landscape where objects are magnified a million times. In Microspace, the scale factor, S , is 10^6 .

By definition, $S = \frac{\textit{scaled length}}{\textit{actual length}}$, so $\textit{scaled length} = \textit{actual length} \times S$.

At this scale, a 64” tall person would be:

$$\textit{scaled length} = 64\textit{in} \times \frac{0.0254\textit{m}}{\textit{in}} \times 10^6 \cong 1.6 \times 10^6 \textit{m} \text{ tall.}$$

A distance of a million meters is hard for the average person raised on miles to fathom, so it is useful to convert meters to miles, as follows:

$$1.6 \times 10^6 \textit{m} \times \frac{\textit{mi}}{1.6 \times 10^3 \textit{m}} = 10^3 \textit{mi}$$

A thousand miles is approximately the distance from South Hadley to Tallahassee, FL, Memphis TN, Des Moines, IA, or Minneapolis, MN. A person magnified by this amount could lie with her feet in South Hadley and her head in any of these cities!