

Exercise 79

A chemist's 50-Trillion Angstrom Run (see Exercise 1.78) would be an archeologist's 10,900 cubit run. How long is one cubit in meters and in feet? ($1 \text{ \AA} = 1 \times 10^{-8} \text{ cm}$)

Solution

Since we want to know what one cubit is, put it in the denominator of the first conversion factor.

$$\frac{50 \times 10^{12} \cancel{\text{ \AA}}}{10,900 \text{ cubits}} \times \frac{1 \times 10^{-8} \cancel{\text{ cm}}}{1 \cancel{\text{ \AA}}} \times \frac{1 \text{ m}}{100 \cancel{\text{ cm}}} \approx 0.46 \frac{\text{m}}{\text{cubit}}$$

Start the same way and convert to feet this time.

$$\frac{50 \times 10^{12} \cancel{\text{ \AA}}}{10,900 \text{ cubits}} \times \frac{1 \times 10^{-8} \cancel{\text{ cm}}}{1 \cancel{\text{ \AA}}} \times \frac{1 \cancel{\text{ m}}}{2.54 \cancel{\text{ cm}}} \times \frac{1 \text{ ft}}{12 \cancel{\text{ in}}} \approx 1.5 \frac{\text{ft}}{\text{cubit}}$$