1. A newborn baby has about 26,000,000,000 cells. An adult has about 1.9×10^3 times as many cells as a newborn. About how many cells does an adult have? Write your answer in scientific notation.

$$2.6 \times 10^{10} \cdot 1.9 \times 10^3$$

$$\boxed{4.94 \times 10^{13} \text{, adult cells}}$$

$$\begin{array}{r} \overset{5}{2.6} \\ 1.9 \\ \hline 234 \\ 260 \\ \hline 4.94 \end{array}$$

2. The edge of a cube measures 3.5×10^{-2} meters. What is the volume of the cube in cubic meters? Write your answer in scientific notation.

$$\begin{array}{r} \overset{12}{3.5} \\ \times 3.5 \\ \hline 175 \\ 1050 \\ \hline 12.25 \end{array} \qquad \begin{array}{r} \overset{1}{1}\overset{1}{2}.\overset{12}{25} \\ \times 3.5 \\ \hline 6125 \\ 36750 \\ \hline 42.875 \end{array}$$

$$3.5 \times 10^{-2} \cdot 3.5 \times 10^{-2} \cdot 3.5 \times 10^{-2}$$

$$42.875 \times 10^{-6}$$

$$\boxed{4.2875 \times 10^{-5} \quad m^3}$$

3. The smallest state in the United States is Rhode Island with a land area of about 2.9×10^{10} square feet. The largest state is Alaska whose land area is about 5.5×10^2 as great as the land area of Rhode Island. What is the land area of Alaska in square feet? Write your answer in scientific notation.

$$\begin{array}{r} \overset{14}{5.5} \\ \times 2.9 \\ \hline 495 \\ 1100 \\ \hline 15.95 \end{array}$$

$$2.9 \times 10^{10} \cdot 5.5 \times 10^2$$

$$15.95 \times 10^{12}$$

$$\boxed{1.595 \times 10^{13} \quad ft^2}$$

4. Astronomers estimate that the diameter of the Andromeda galaxy is approximately 2.2×10^5 light-years. A light-year is the distance light travels in a vacuum in 1 year. One light-year is approximately 5.9×10^{12} miles. What is the diameter of the Andromeda galaxy in miles? Write your answer in scientific notation.

$$2.2 \times 10^5 \cdot 5.9 \times 10^{12}$$

$$\begin{array}{r} \overset{1}{5.9} \\ 2.2 \\ \hline 118 \\ 1180 \\ \hline 12.98 \end{array}$$

$$12.98 \times 10^{17}$$

$$\boxed{1.298 \times 10^{18} \quad mi}$$

The table below shows the approximate populations of three countries.

Country	China	France	Australia
Population	1.33×10^9	6.48×10^7	2.15×10^7

5. How many more people live in France than in Australia? Write your answer in scientific notation.

$$6.48 \times 10^7 - 2.15 \times 10^7$$

$$\boxed{4.33 \times 10^7 \text{ people}}$$

$$\begin{array}{r} 6.48 \\ -2.15 \\ \hline 4.33 \end{array}$$

6. The area of Australia is about 2.95×10^6 square miles. What is the approximate average number of people per square mile in Australia?

$$\frac{2.15 \times 10^7}{2.95 \times 10^6}$$

$$\frac{2.15}{2.95} \cdot 10^{7-6}$$

$$.7288 \times 10^1$$

$$\boxed{7.288 \times 10^0 \rightarrow \approx 7.3 \text{ people per mi}^2}$$

7. What is the ratio of the population of China to the population of France? What does this mean?

$$\frac{1.33 \times 10^9}{6.48 \times 10^7}$$

$$\frac{1.33}{6.48} \cdot 10^{9-7}$$

$$.2052 \times 10^2$$

$$\boxed{2.052 \times 10 \rightarrow \approx 20 \text{ to } 1 \text{ ratio}}$$