Tutorial One
General Physics 3114
Kigali Institute of Science and Technology
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1. Barack Obama, the president of the United States, is 6 feet, 2 inches tall. How many centimeters tall is President Obama?

2. It is 81 kilometers from Kigali to Butare. President Obama is visiting Kigali and he is not familiar with kilometers. He wants to visit Butare. How many miles is it from Kigali to Butare?

3. The state of Maine in the United States is $35,000$ mi^2. How many square kilometers is Maine? How many hectares are there in Maine?

4. Chantal is exactly 20 years old. How many seconds has she been alive for?

5. How many cubic centimeters (cm^3) are there in one cubic meter (m^3)?

6. Consider a house that is 5 meters long, 6 meters wide, and 3 meters tall

    (a) What is this volume of this house in cubic centimeters? Use scientific notation for your answer.
    (b) What is the volume of the house in liters?

7. Write down the following numbers in scientific notation:

    (a) $450,070$
    (b) $6,345,000$
    (c) 0.0034
    (d) 0.0000278

8. Write following numbers in regular (non-scientific) form

    (a) 3.14×10^5
    (b) $6.1369 \times 10-4$
    (c) 6×10^{-6}
    (d) 3.0×10^8

9. A typical coffee plantation can grow 60 grams of coffee on one square meter.

    (a) How much coffee can be grown on one hectare?
    (b) In the U.S., one pound of coffee sells for around 12 dollars. How much land would you need to grow 1000 dollars worth of coffee? Express your answer in both square meters and hectares.

Some Conversion Factors:

- 39 inches = 1 meter.
- 1 foot = 12 inches.
- 1 kilogram = 2.2 pounds.
- 1000 liters = 1 m^3.
- 1.6 km = 1 mile.
- 1 km = 10^3 meters.
- 1 cm = 10^{-2} meters.
- 1 mm = 10^{-3} meters.
- 1 μm = 10^{-6} meters.