

- 1) What are the SI units for distance, mass, and temperature?

- 2) Write the definitions, symbols, and values for the following SI unit prefixes:
 - a) kilo
 - b) centi
 - c) mega
 - d) deci
 - e) milli
 - f) micro
 - g) nano
 - h) pico

- 3) How many miles are there in 3.45×10^{25} cm?

- 4) How many meters are there in 89 inches? (2.54 centimeters = 1 inch).

- 5) How many feet are there in 75 meters?

- 6) What temperature is 690° C in Kelvin?

1) What are the SI units for distance, mass, and temperature?

Distance is in meters, mass is in kilograms, and temperature is in degrees Celsius or in Kelvin.

2) Write the definitions, symbols, and values for the following SI unit prefixes:

- a) kilo **K** **one thousand or 1,000 or 10^3**
- b) centi **c** **one hundredth or 0.01 or 10^{-2}**
- c) mega **M** **one million or 1,000,000 or 10^6**
- d) deci **d** **one tenth or 0.1 or 10^{-1}**
- e) milli **m** **one thousandth or 0.001 or 10^{-3}**
- f) micro **μ** **one millionth – usually 10^{-6} or 0.000 001**
- g) nano **n** **one billionth – usually 10^{-9} or 0.000 000 001**
- h) pico **p** **one trillionth – usually 10^{-12} or 0.000 000 000 001**

3) How many miles are there in 3.45×10^{25} cm?

$$3.45 \times 10^{25} \text{ cm} \times \frac{1 \text{ in}}{2.54 \text{ cm}} \times \frac{1 \text{ ft}}{1 \text{ in}} \times \frac{1 \text{ mi}}{5280 \text{ ft}} = 2.14 \times 10^{20} \text{ mi}$$

4) How many meters are there in 89 inches? (2.54 centimeters = 1 inch).

$$89 \text{ in} \times \frac{2.54 \text{ cm}}{1 \text{ in}} \times \frac{10^{-2} \text{ m}}{1 \text{ cm}} = 2.3 \text{ m}$$

5) How many feet are there in 75 meters?

$$75 \text{ m} \times \frac{1 \text{ cm}}{10^{-2} \text{ m}} \times \frac{1 \text{ in}}{2.54 \text{ cm}} \times \frac{1 \text{ ft}}{12 \text{ in}} = 250 \text{ ft}$$

6) What temperature is 690°C in Kelvin?

$$690 + 273 = 963 \text{ K}$$