

Homework 1

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- **True or False questions**

- 1. The SI system has only three base units. ✗
- 2. The definition of the standard for length is based on the speed of light in vacuum. ✓
- 3. The new definition of the second is based on the period of the Earth's rotation. ✗

- **Multichoice Questions:**

- 4. Which one among the following physics quantities is a derived quantity:

- a- The mass of the proton
- b- The radius of the Earth
- ☒ c- The speed of sound *m/s*
- d- The period of oscillation of a simple pendulum

- 5. Given that the force can be written as $F = ma$, where m is the mass and a is the acceleration, the SI unit for the force is:

- a- $kg\ m\ s$
- b- $kg\ m/s$
- ☒ c- $kg\ m/s^2$
- d- $kg\ m\ s^2$

- **Problems:**

- 6. The distance between two cities is $d=525\ km$. Given that $1\ mile=1.609\ km$, convert this distance into miles.
- 7. A plant can grow 2.5 inches in 5 days, what is its growth rate in millimetres per hour.
($1\ in=2.54\ cm$)

$$km \rightarrow mile \Rightarrow \frac{525}{1.609} = 326.22\ mile$$



7. growth rate = $\frac{2.5 \text{ inch}}{5 \text{ days}} = \text{---} \frac{\text{mm}}{\text{hr}}$

$$\frac{2.5 \text{ inch}}{5 \text{ days}} = \frac{2.5 \times 2.54 \times 10}{5 \times 24} \frac{\text{mm}}{\text{hr}} = 0.529 \text{ mm/r}$$

EXERCISE:

How many significant figure has each of the following numbers?

Number	Number of significant figures
154.89	5
0.001002	4
5002	4