

## PHYSICS – Grade 9 Week 1 Worksheet – Solutions

1.

Length	Measuring instrument	Unit
Diameter of coin	Vernier caliper	mm
Width of table	Half-metre rule	cm
Height of desk	Metre rule	cm
Length of football ground	Measuring tape	m

2.

- a.  $2.3 \text{ m} = 2.3 \times 100 = 230 \text{ cm}$
- b.  $0.876 \text{ km} = 0.876 \times 1000 = 876 \text{ m}$
- c.  $54300 \text{ mm} = 54300/1000 = 54.3 \text{ m}$
- d.  $0.00654 \text{ cm} = 0.00654 \times 10 = 0.0654 \text{ mm}$

3.

- a. Main scale reading = 1.1 cm  
Vernier scale reading =  $6 \times 0.01 = 0.06 \text{ cm}$   
Total reading =  $1.1 + 0.06 = 1.16 \text{ cm}$
- b. Main scale reading = 10.0 cm  
Vernier scale reading =  $2 \times 0.01 = 0.02 \text{ cm}$   
Total reading =  $10.0 + 0.02 = 10.02 \text{ cm}$
- c. Main scale reading = 2.0 cm  
Vernier scale reading =  $7 \times 0.01 = 0.07 \text{ cm}$   
Total reading =  $2.0 + 0.07 = 2.07 \text{ cm}$

4.

- a. s
- b. analog stopwatch: 2 min 1.6 s  
digital stopwatch: (0 min) 37 s 22 cs or 37.22 s
- c.
  - i.  $2.3 \text{ min} = 2.3 \times 60 = 138 \text{ s}$
  - ii.  $0.47 \text{ h} = 0.47 \times 60 = 28.2 \text{ min}$
  - iii.  $0.091 \text{ h} = 0.091 \times 3600 = 327.6 \text{ s}$

5.

- a. An oscillation is the to-and-fro motion of the bob (when it is slightly displaced and released).
- b. Time period is the time taken for 1 complete oscillation.
- c. Average  $t_{30} = (61+59)/2 = 60$  s
- d.  $T = t_{30}/30 = 60 / 30 = 2$  s

6.

- a. Temperature is a measure of the degree of hotness or coldness of a body.
- b. Kelvin (K)
- c. Convert the following:
  - i.  $313 \text{ K} = 313 - 273 = 40 \text{ }^{\circ}\text{C}$
  - ii.  $21 \text{ }^{\circ}\text{C} = 21 + 273 = 294 \text{ K}$
- d. digital thermometer