INDIAN SCHOOL AL WADI AL KABIR		
CLASS: VI	**DEPARTMENT: SCIENCE 2025-26**	**DATE: 05-02-2026**
WORKSHEET NO: 12 WITH ANSWERS	**TOPIC: MEASUREMENT OF LENGTH AND MOTION**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE-TYPE QUESTIONS

1. Which of the following is the correct order to show units from smallest to largest?

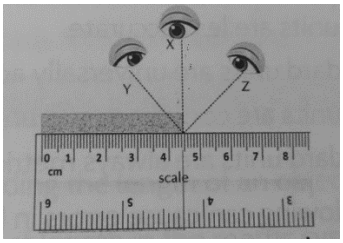
(a) mm, cm, km

(b) km, dm, cm

(c) mm, dm, km

(d) cm, mm, km

2. The image shows a student measuring the length of a line segment using a ruler.



Which of the following statements is correct?

(a) The measurement will be accurate regardless of the position of the eye.
(b) The measurement will be inaccurate if the eye is positioned towards the Y and Z marked point.
(c) The ruler cannot measure the length of the line segment.
(d) The measurement requires a non-standard unit.

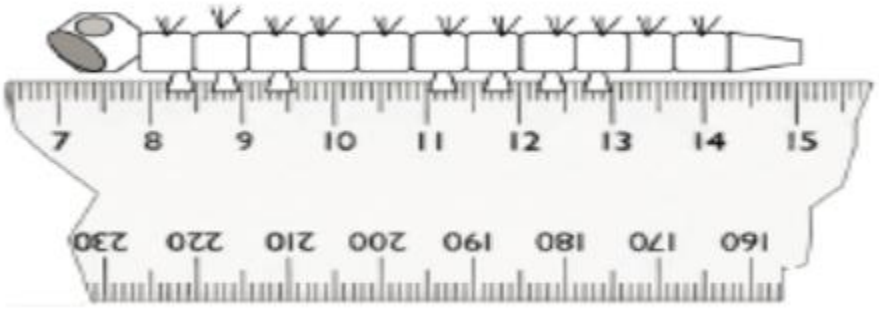
3. Two objects are measured: one is 0.5 m, the other is 50 cm. Which statement is correct?
(a) Both are equal in length.
(b) First is longer.

(c) Second is longer.
(d) Cannot be compared.

4. The least count of a standard 30 cm scale is _____
(a) 0.1 mm.
(b) 1 mm.
(c) 0.5 cm.
(d) 1 cm.

5. Which of the following motions is to-and-fro about a fixed point**?**
(a) Linear motion.
(b) Circular motion.
(c) Oscillatory motion.
(d) Rotational motion.

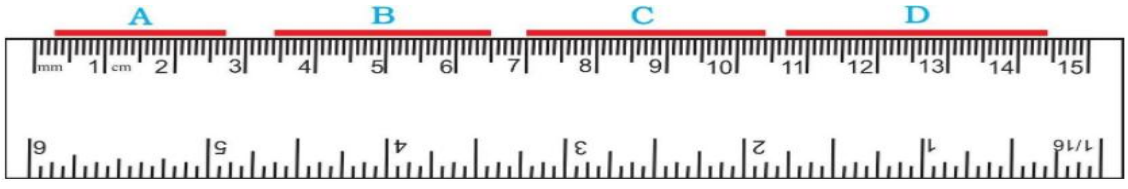
6. Sam wants to calculate the length of the caterpillar which she had collected for a science project. All she could find was a broken ruler. She lined up the ruler and the caterpillar like this:



What is the length of the caterpillar?

(a) 6 cm.
(b) 7 cm.
(c) 8 cm.
(d) 14 cm.

7. Four wooden sticks A, B, C and D are placed along the length of a 15 cm long scale as shown in fig. given below. Which one of them is 3.4 cm in length?



(a) A
(b) B
(c) C
(d) D

For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below

i) Both A and R are true, and R is the correct explanation of the assertion.

ii) Both A and R are true, but R is not the correct explanation of the assertion.

iii) A is true, but R is false.

iv) A is false, but R is true

8**. Assertion (A):** Circular motion can be observed in a ceiling fan.

Reason (R): Circular motion is motion along a straight path.

9. **Assertion (A):** A steel scale is more accurate than a paper scale.

Reason (R): Steel does not stretch or bend easily, so measurements are more precise.

10**. Assertion (A):** The length of the space between two points is called distance.

Reason (R): The distance between two places is usually expressed in cm.

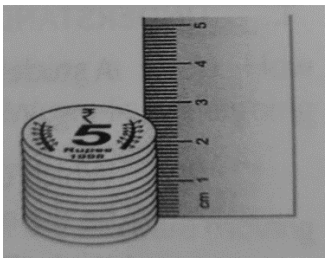
II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. Differentiate between a body at rest and in motion**.**

[Hint: Rest: An object that does not change its position over time, relative to its surroundings, is said to be at rest.]

Motion: An object that changes its position with time, relative to its surroundings, is said to be in motion.]

2. How would you find the thickness of a coin if the coin tower with 10 coins shown in the figure below has a height of 2.4 cm.



[Hint: Given:

- Height of 10 coins stacked = 2.4 cm
- Number of coins = 10

Formula

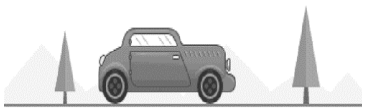
$$\textbf{Thickness of one coin} = \frac{\textbf{Total height of stack}}{\textbf{Number of coins}}$$

$$\textbf{Thickness of one coin} = \frac{\textbf{2.4 cm}}{\textbf{10}} = \textbf{0.24 } \boldsymbol{cm} \textbf{ = 2.4 } \boldsymbol{mm}$$

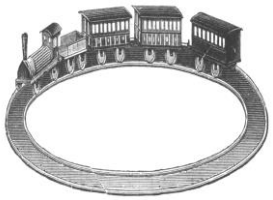
Thickness of one coin = **0.24 cm** or **2.4 mm.]**

3. Why should a rigid scale be used instead of a flexible one for measurement?
[Hint: A rigid scale does not bend or stretch, so it gives accurate measurements.]

4. Observe the pictures given below and write down the type of motion exhibited by each.



A



B

C

[Hint: A – Linear motion, B – Circular motion, C – Oscillatory motion]

5. Define Handspan.
[Hint: The length between the tip of the thumb and the little finger of an open palm is known as 'handspan'.]

6. A fan's blades rotate continuously. What type of motion is this, and how can you measure its path length?

[Hint: Circular motion: the path length can be measured along the circular edge using a flexible tape.]

7. What do you mean by reference point?

[Hint: When distance is stated with respect to a fixed object or point, then this point is called a reference point.]

III. SHORT ANSWER TYPE QUESTIONS: (3M)

1. Sania wants to measure the circumference of a tree. She is given a woollen thread and a cotton thread. Which one should she use and why?

[Hint: Sania should use the cotton thread.

Reason:

- **Cotton thread does not stretch easily, so it will give an accurate measurement of the tree's circumference.**
- **Wool thread is stretchable, so using it may give a longer or incorrect measurement.]**

2. Rahul wants to measure his new study table, but he found that a zero mark is missing in his scale. In such a case, how will he measure his table?

[Hint: (a) Avoid taking measurements from the zero mark. (b) Use any other full mark of the scale. (c) Subtract the reading of this mark from the reading at the other end.]

3. Define Oscillatory motion with the help of an activity.

[Hint: Activity- Tie a marble ball at one end of a thread. Hang the marble ball by holding the other end of the thread. Keep your hand steady. Using the other hand, take the marble ball slightly to one side and then release it to observe the oscillatory motion.
Definition: When an object moves to and fro about some fixed position, its motion is called oscillatory motion.]

4. Convert the following :

a) 45 km = _____m b) 77 m = _____ cm c) 189 cm = _____ mm

[Hint: a) 1 km=1000 m, thus 45 km = 45 x1000 = 45000 m.

b) 1m = 100 cm, Thus 77 m = 77 x 100 cm = 7700 cm.

c) 1 cm = 10 mm, Thus 189 cm = 189 x 10 mm = 1890 mm.]

5. The distance between the Dadar station and the Mumbai Central station is 8.4 km. Express this distance in i) metres ii) centimetres

[Hint: 1 km=1000 m, thus 8.4 km = 8.4 x1000 = 8400 m.

1m = 100 cm, Thus, 8400 m = 8400 x 100 cm = 840000 cm.]

6. While travelling in a train, it appears that the trees near the track are moving, whereas co-passengers appear to be stationary. Explain the reason.

[Hint: When we see the trees from a moving train, their position is changing with respect to us. Hence, they appear to be moving. On the other hand, the position of co-passengers is not changing with respect to us, hence they appear to be stationary. Motion and rest are sometimes relatable.]

IV. LONG ANSWER TYPE QUESTIONS. (5M)

1. Explain the thread method to measure a curved line.

[Hint: Take a string and put a mark at one of its ends.

Place the marked end of the thread at the beginning of the curved line.

Press it down with your thumb and keep tracing the entire length of the curved line.

The thread should be carefully placed above the curved line. Mark the endpoint.

Stretch the thread and measure its length between the two marks using a ruler.

It gives the length of the curved line.]

V. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS

Meena wanted to measure the length of her notebook, a pencil, and the height of her classroom. She first tried using a cloth tape for all objects, but realised that it stretched and gave inaccurate readings. Then she used a steel scale for the notebook, a centimetre scale for the pencil, and a measuring tape for the classroom. She tried different tools to measure because objects of different sizes require different measuring tools for accuracy. Small objects need scales with smaller units (like cm), and large objects need longer tapes (like m). She also estimated the number of coins required to cover the length of her notebook before measuring accurately with the steel scale.

i. Why did Meena use different tools to measure different objects?

Ans: Because objects of different sizes require different measuring tools for accuracy. Small objects need scales with smaller units (like cm), and large objects need longer tapes (like m).

ii. Why was the cloth tape not suitable for accurate measurement?

Ans: Because cloth tape is flexible and can stretch, leading to inaccurate measurements.

iii. Which tool would give the most precise measurement for the pencil?

Ans: A centimetre scale or millimetre scale, because it measures small lengths.

ANSWERS FOR OBJECTIVE TYPE QUESTIONS [1 to 10]:

1. (a) mm, cm, km
2. (b) The measurement will be inaccurate if the eye is positioned towards the Y and Z marked point.
3. (a) Both are equal in length.
4. (a) 0.1 mm.
5. (c) Oscillatory motion.
6. (c) 8 cm.
7. (c) C
8. (iii) A is true, but R is false.
9. (i) Both A and R are true, and R is the correct explanation of the assertion.
10. (iii) A is true, but R is false.

Prepared by: *Ms Alysia Fernandes*	*Checked by:* *HOD Science*