

Kasthalab-1 Worksheet: Verify Pythagoras Theorem

Objective:

To verify the Pythagoras theorem

Materials:

- Kasthalab-1
- Ruler or measuring tape
- Calculator (optional)

Procedure:

1. Measure the lengths of the two shorter sides (legs) of the right triangle. Record them as **a** and **b**.
2. Measure the length of the longest side (hypotenuse) and record it as **c**.
3. Calculate $a^2 + b^2$ and compare it with c^2 .
4. Repeat the measurements a few times if the shape can be adjusted or different triangles can be used.

Data Table:

Set	Side a (cm)	Side b (cm)	Side c (cm)	$a^2 + b^2$	c^2	Is $a^2 + b^2 = c^2$?

Reflection:

- Did the measurements support the Pythagoras theorem? Explain any small differences.
- How could measurement errors affect your conclusion?

Kasthalab-1 Worksheet: Exploring Circles and π

Objective:

To verify the ratio of circumference to diameter is approximately π .

Materials:

- Kasthalab-1
- Measuring tape or string and ruler
- Calculator (optional)

Procedure:

1. Measure the diameter (d) of the circle.
2. Measure the circumference (C) by wrapping a string around the circle and measuring the string length.
3. Calculate the ratio C/d .
4. Repeat for circles of different sizes.

Data Table:

S. N	Circle	Diameter (cm)	Circumference (cm)	C/d Ratio	Remarks

Reflection:

- How close is your experimental ratio to π ?
- What factors might cause differences?
- Why is π important in math and science?

Kasthalab-1 Worksheet: Area and Perimeter of Square & Rectangle

Objective:

To calculate the area and perimeter of squares and rectangles.

Materials:

- Kasthalab-1
- Ruler
- Calculator (optional)

Procedure:

1. Measure the side length of the square.
2. Calculate the area $A = (\text{length})^2$ and perimeter $P = 4 \times \text{length}$
3. Measure length and width of the rectangle.
4. Calculate area $A = \text{length} \times \text{width}$ and perimeter $P = 2 \times (\text{length} + \text{width})$

Data Table:

Shape	Length (cm)	Width (cm)	Area (cm ²)	Perimeter (cm)
Square				
Rectangle				

Reflection:

- Which shape had a greater perimeter for the same area?
- How could you use this knowledge in real-world problems?