📝 Geometrical Constructions – Notes and Examples

1. Measure and Draw Lines and Angles

- Use a **ruler** to draw accurate straight lines.

- Use a **protractor** to measure and draw angles (if required).

- Always label the lengths and angles clearly.

2. Construct a Triangle Given All Sides (SSS)

- Use only a **ruler and compasses** (no protractor).

- Steps:

  1. Draw the base of the triangle using a ruler.

  2. Set compass width to one of the other sides and draw an arc from one endpoint.

  3. Set compass to the third side and draw an arc from the other endpoint.

  4. Mark the intersection of arcs as the third vertex
  5. Join all points to complete the triangle.

- **Show construction arcs clearly** in your diagram.

3. Construct a Rhombus (Using Two Triangles)

- A rhombus is made of **two congruent triangles**.

- All sides are equal in length.

- Steps:

  1. Draw one diagonal using a ruler.

  2. Use compasses to construct two congruent triangles by drawing arcs from both ends of the diagonal.

  3. Join the points to form the rhombus.

- **Construction arcs must be visible**.

5. Use Nets to Calculate Volume and Surface Area

- **Volume**: Use formulas depending on the 3D shape.

    - Cube: $V = a^3$

    - Cuboid: $V = l \times w \times h$

    - Prism: $V = \text{Area of cross-section} \times \text{length}$

    - Pyramid: $V = \frac{1}{3} \times \text{Base Area} \times \text{Height}$

- **Surface Area**: Add up the area of all faces in the net.

    - Count each shape in the net and calculate their individual areas.

    - Add them together for total surface area.

✅ Important Tips

- Use a **sharp pencil** and **clear labeling**.

- Use **ruler for all straight lines**.

- Do **not erase construction arcs**.

- Bisectors are **not required** for your level.