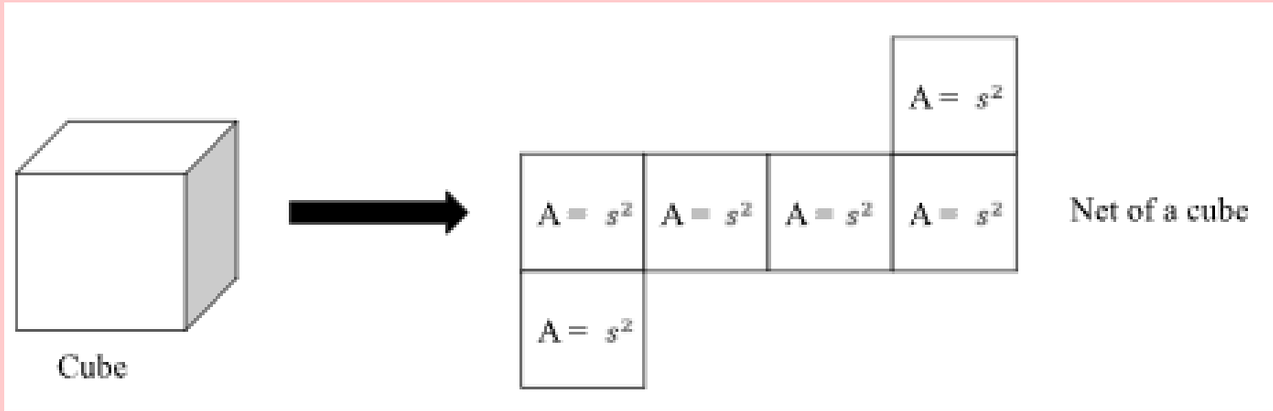
SURFACE AREA OF A SOLID FIGURES

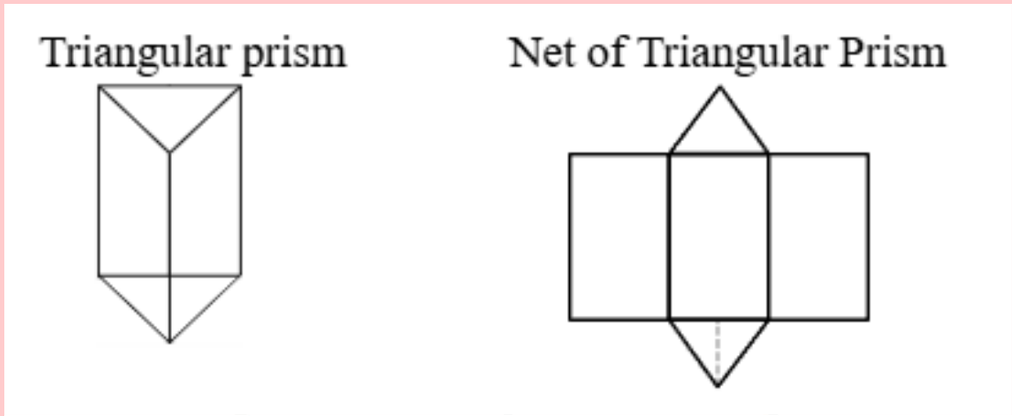
Surface area of a cube

A cube has **six square faces,** and the total area of these six faces is equal to its surface area.



Surface Area of a Triangular Prism

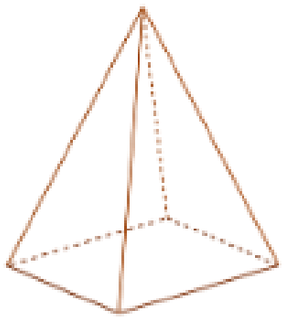
A triangular prism has **three rectangular lateral faces and two triangular bases.** The surface area is the sum of the areas of the two bases and the three lateral faces.



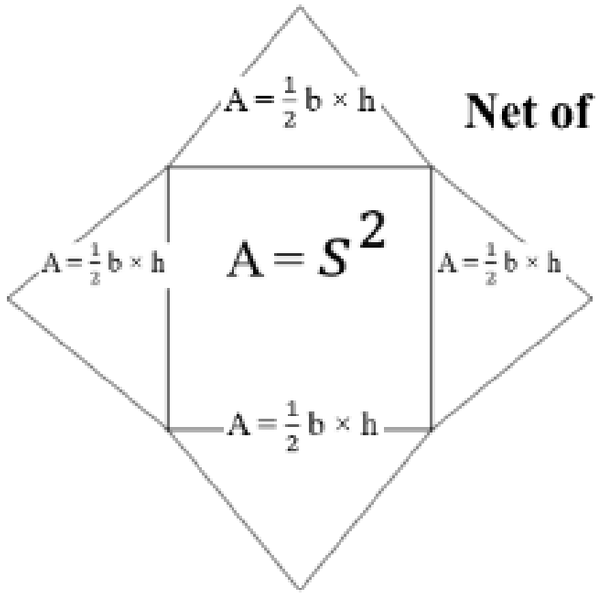
Surface area of Pyramid

A pyramid is a solid with a **polygonal base,** and its **lateral faces** are triangles that all meet at a common vertex, known as the **apex.**

Square pyramid



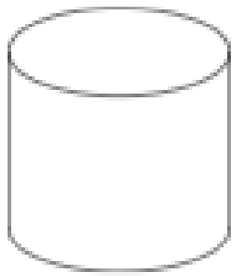
Net of Square pyramid



The surface area of a pyramid is the sum of the area of its polygonal base and the areas of its triangular faces.

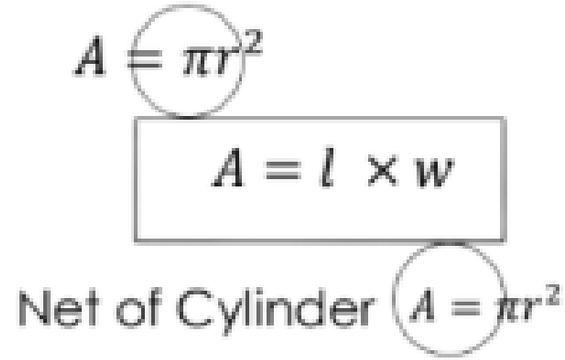
Surface Area of Cylinder

A cylinder is a solid figure that has **two circular bases and one curved surface** connecting them.



Cylinder

Open figure of Cylinder

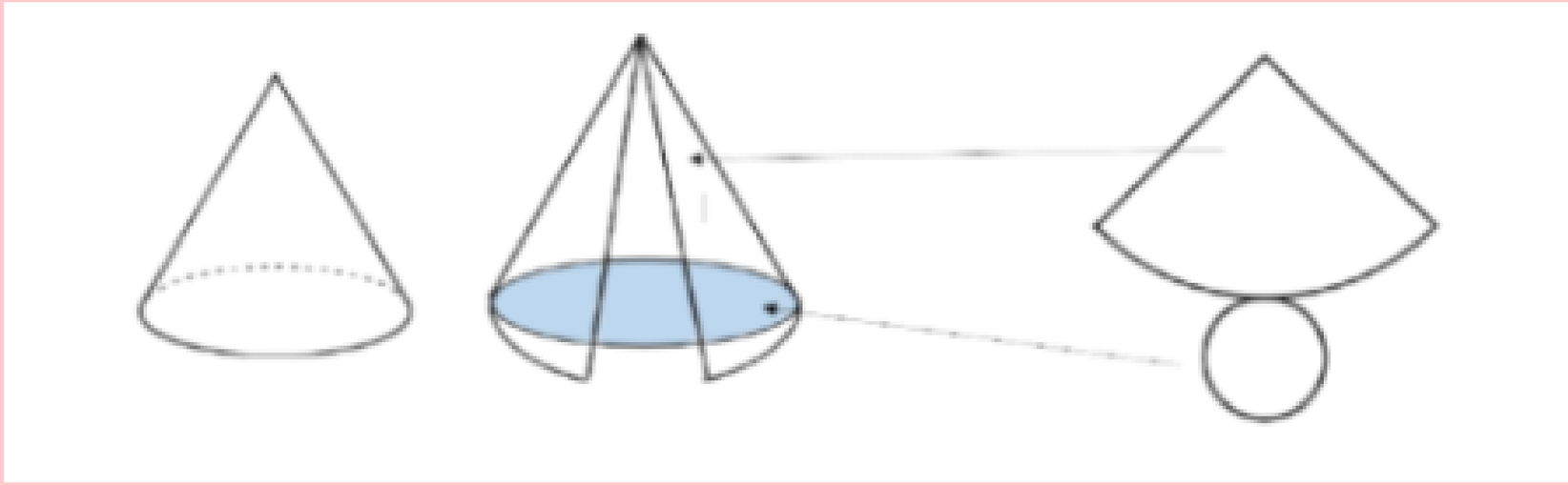


The surface area of the cylinder is the sum of the area of the two circular bases and the rectangular lateral area. Thus the surface area for cylinder is

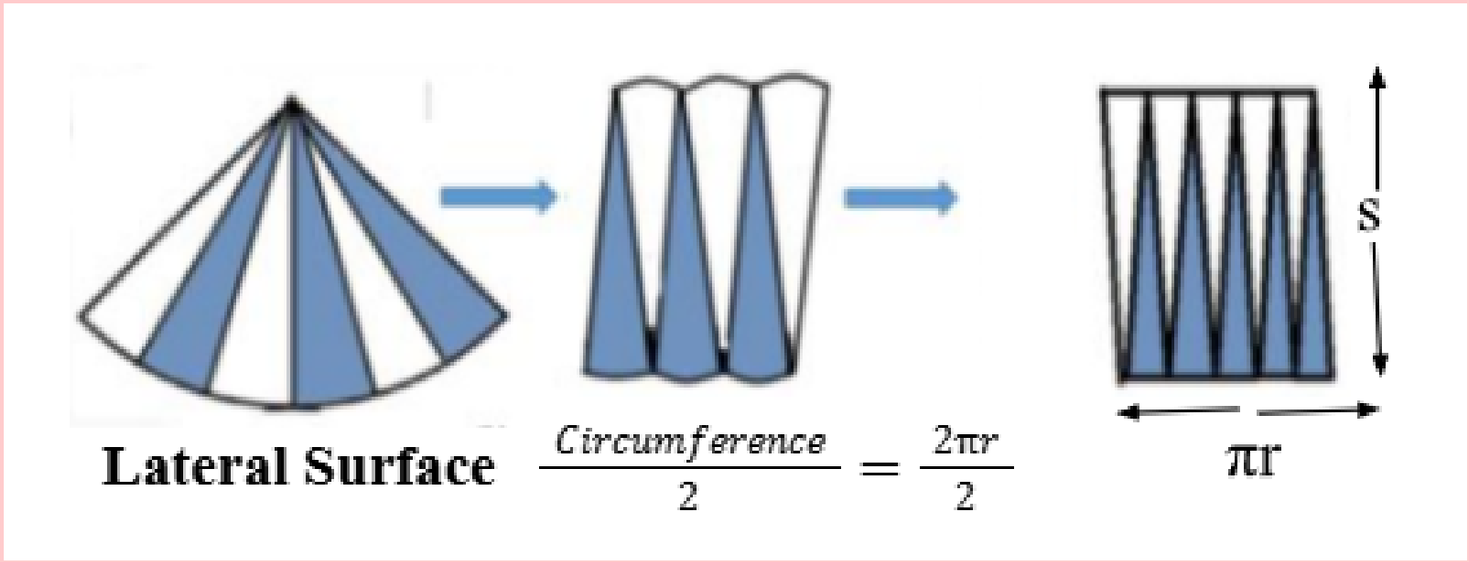
SA = LS + 2B or SA = 2πrh

Surface Area of a Cone

A cone is a solid figure with **one vertex, a circular base, and a curved lateral** surface connecting the base to the vertex.



To calculate the area of the lateral surface, we divide it into equal parts and then arrange these parts into a rectangular shape, as demonstrated below:

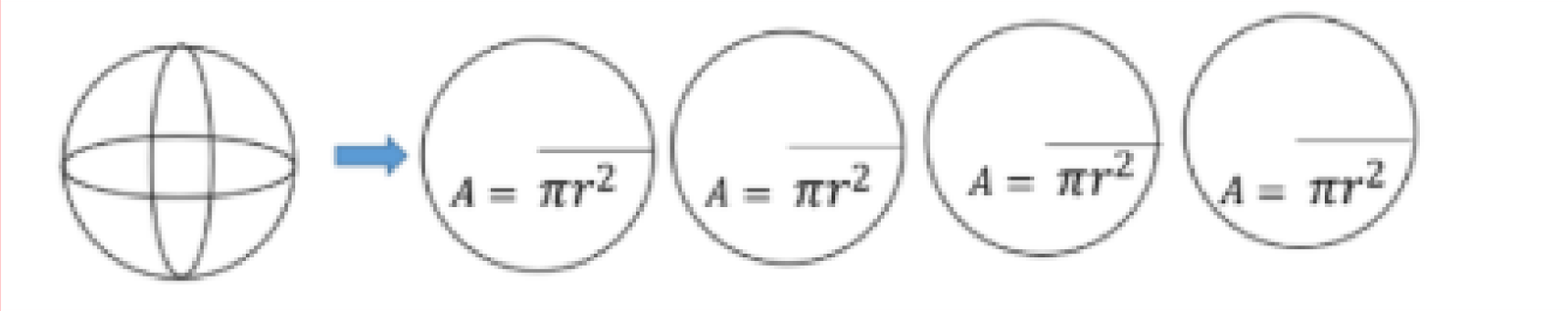


The base of the new figure is πr and the height is the slant height of the curved surface. So, L.A. = πrs

$$SA = \pi rs + \pi r^2$$

Surface Area of Sphere

A sphere is a **three-dimensional figure** where every point on its surface is equidistant from its center. If you take a semicircle and rotate it around its diameter, the figure created is a sphere.



The total area of four circles, each with the same radius, completely covers the surface area of a sphere with that radius. Therefore, the surface area (SA) of a sphere is given by the formula: $SA = 4\pi r^2$

Units of Measure for the Surface Area

To measure surface area, we also use square units, such as square millimeters (mm^2), square centimeters (cm^2), square decimeters (dm^2), square meters (m^2), square kilometers (km^2), square inches (in^2), square feet (ft^2), square yards (yd^2), or square miles (mi^2).

Examine the illustration to understand how the unit of measure for the surface area of the rectangular prism is applied.