* The perimeter of a shape represents the distance around it,
* The area of a shape is the surface or flat space that the shape covers (in 2D/two-dimensional shapes)
* The volume of a shape is the space it occupies in real life (in 3D/three-dimensional shapes).
* The distance across a circle through the centre is called the diameter.
* The distance from the centre of a circle to any point on the boundary is called the radius. The radius is half of the diameter
* Length is the longest dimension whereas width is the shortest dimension. Length is always larger than the width. In other words, length denotes a figure's longer side, while width denotes its shorter side.
* Height: The height is defined as the measurement of the distance of an object from the base to the top.
* The base of a shape is defined as the surface, a solid object stands on or rests upon. Also, the base is considered the bottom line of a shape such as a triangle. But, the top is also considered as a base when it is parallel to the bottom.

**Area Formulas for different geometrical figures:**

|  |  |  |
| --- | --- | --- |
| **Figures** | **Area Formula** | **Variables** |
| Area of Rectangle | Area = l × w | l =  lengthw  = width |
| Area of Square | Area  = a2 | a = sides of the square |
| Area of a Triangle | Area = 1/2 b×h | b = baseh = height |
| Area of a Circle | Area = πr2 | r = radius of the circle |
| Area of a Trapezoid | Area = 1/2 (a + b)h | a =base 1b = base 2h = vertical height |
| Area of Ellipse | Area = πab | a = radius of the major axisb = radius of the minor axis |

**Perimeter Formulas for different geometrical figures:**

|  |  |  |
| --- | --- | --- |
| **Geometric Shape** | **Perimeter Formula** | **Metrics** |
| Parallelogram | 2(Base + Height) |  |
| Triangle | a + b + c | a, b and c being the side lengths |
| Rectangle | 2(Length + Width) |  |
| Square | 4a | a =Length of a side |
| Trapezoid | a +b+c+d | a, b, c, d being the sides of the trapezoid |
| Kite | 2a + 2b | a = Length of the first pair of equal sidesb = Length of the second pair of equal sides |
| Rhombus | 4 x a | a  = Length of a side |
| Hexagon | 6 x a | a  = Length of a side |

**requently Asked Questions on Area and Perimeter Formula**

Q1

**What is meant by the area and perimeter of any shape?**

Area means the region enclosed by any closed figure and perimeter means the length of the boundary of the shape.

Q2

**What is the area and perimeter of an equilateral triangle?**

Area of equilateral triangle = √3/4 a2 and perimeter of an equilateral triangle = 3a where a is the length of the side of the equilateral triangle.

Q3

**What is the area and perimeter of an isosceles triangle?**

Area of isosceles triangle = b/4[4a2 – b2]1/2 and perimeter of an isosceles triangle = 2a + b where a is the length of the equal sides and b is the length of the unequal side.

Q4

**What is the area of a trapezium?**

Area of a trapezium = ½ h(a + b) where h = height and a, b are length of the parallel sides.

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