AREA OF A CIRCLE

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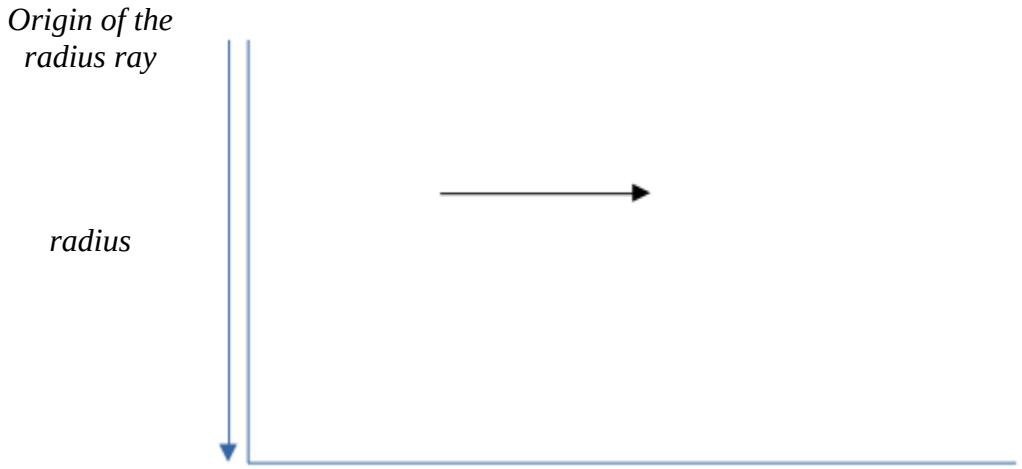
The famous pi constant is the ratio of the length around a circle to the longest chord in the circle. The ratio is crucial when talking about calculations on curved geometry. But why? This is because the ratio connects the 1dimensional length to its consistent curvature in the same dimension. This makes a circle be viewed as a 1D and a 2D entity.

The famous calculation formula to find the area of a circle;

$$A = \pi R^2$$

When modeling the figure to hold the dimensions of the circle fo r easier calculations, I will use a tetrahedron. Area is 2dimensional; 2D is the traversal of a 1dimensional entity along another 1dimensional entity.

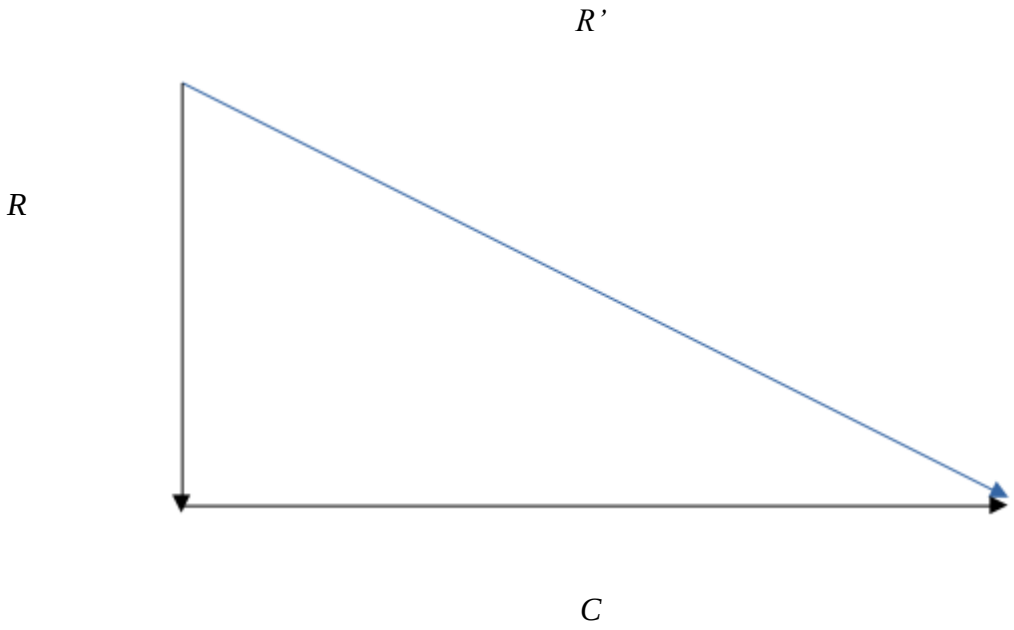


When the radius traverses through the circumference(along the direction of the black arrow), which is also a 1D entity, that forms the area, which becomes a 2D entity and not a 1D as its compositing entities.
According to this simple explanation and understanding, it is very easy to make the conclusion that the area of a circle should then be radius multiplied by the circumference. However,

$$A = 2\pi R^2$$

this calculation yields double the actual area. This is because of the fact that we considered the perception that, the area of a figure involves the shorter dimension, traversing through the longer dimension. In this case, the radius, has an origin and the origin does not change despite the fact that the end of the ray does. This causes some change in the calculations. If the origin does not move, our

calculation will not involve the black arrow in the previous diagram for the whole of the radius, but it will only be applying this to the end of the ray. This makes the radius a vector and no longer a ray. With this, the area of a figure is; "Space enclosed by a figure's 1dimensional vectors pre and after"



From the diagram, we can see the pre-vector of the radius, R and the final radius vector, R' propagating a triangular representation of the area of a circle. Calculation of the area of this figure can be found through various ways:

The area of this circle could be calculated as;

$$A = \frac{1}{2}CR$$

Proof;

$$\pi R^2 = \frac{1}{2}CR$$

$$\pi xRxR = \frac{(2\pi xRxR)}{2}$$

$$2x\pi xRxR = 2x\pi xRxR$$