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# CENTRIFUGAL FORCE

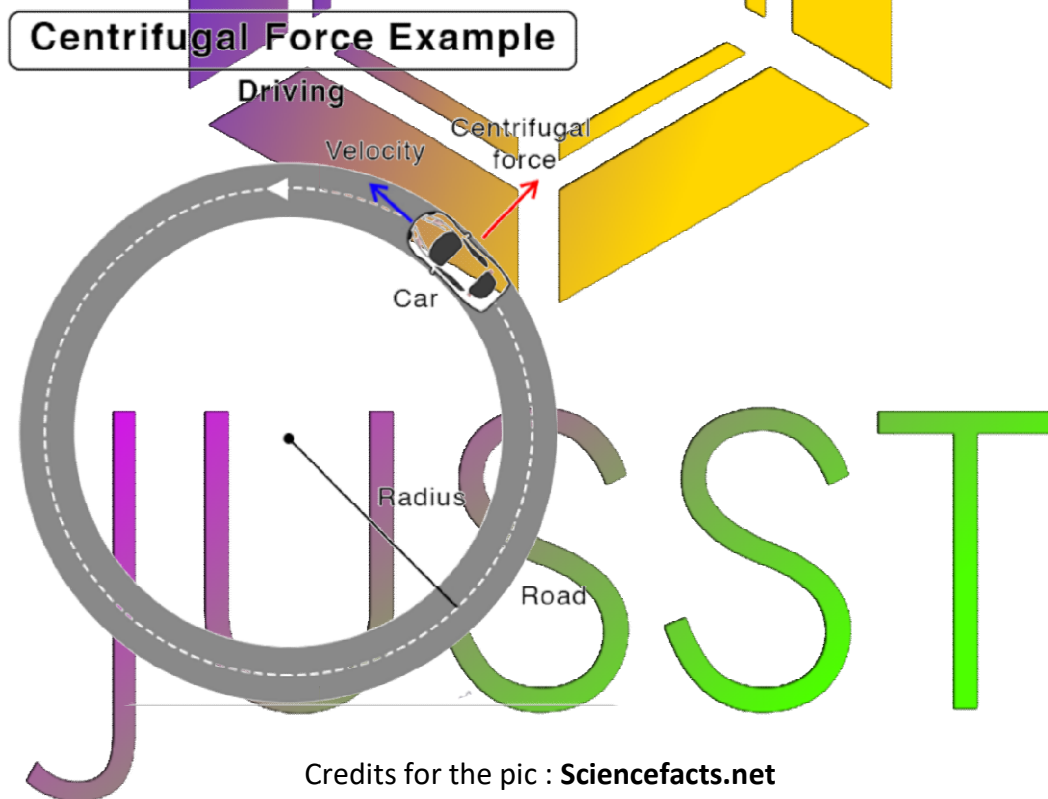
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The word centrifugal is derived from the Latin terms '**Centrum**' and '**fugere**' meaning to flee or tending to **move away** from the centre, this term was used by **Sir Isaac Newton** back in **1629**.

Centrifugal force is a **virtual** (pseudo) force because there is no real force causing it like Gravitational, Electrical, and Magnetic forces. A virtual force can be defined as any system of forces in **equilibrium**.

Centrifugal force describes the tendency of an object following a **curved path** to fly outwards **away** from the centre.

Let us consider an example,



In this scenario the driver will experience an outward push from the centre because of the **Inertia of direction**, the force that pushes him outwards is Centrifugal force.

In this case, **Frictional force** acts as the Centripetal force.

The Centrifugal force is always directed **away** from the centre of the circle.



Centrifugal force can be defined as the **apparent outward force** acting on a mass when it is **rotated**.

The formula for Centrifugal force is,

## Centrifugal Force

$$F = m \times \frac{v^2}{r}$$
$$F = m \times \frac{(\omega r)^2}{r} \text{ or } F = m \times \omega^2 r$$

Credits for the pic: **Precision Graphics**

[As,  $v = \omega \cdot r$ ]

Here,  $\omega$  = Angular Displacement of the mass.

R is the distance of that mass from the centre

The unit for Centrifugal force is same as that of Centripetal: **Newton**.

*THANK YOU*

