

THE ROCKET MOVES FORWARD IN THE SPACE ACCORDING TO THE LAW ACTION = REACTION + ABSORPTION

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ABSTRACT :

Rotation is motion and vice versa . If a force is applied on a wheel and that force simultaneously converts to the centripetal force as well as the centrifugal force then the wheel moves forward. So **Every point of a wheel moves simultaneously in a vertical cycloid path as well as a horizontal straight line path in a rotation .** The vertical cycloid path of the point is moved by the centripetal force and simultaneously the horizontal straight line path of the same point is covered by the centrifugal force .

The centripetal force makes every point of the wheel to rotate in clockwise direction and it is always directed towards the backward direction of the wheel, Similarly the centrifugal force is always directed towards the forward direction and it drags the wheel to that direction . The wheel moves on the road according to this principle. **The motion of a rocket in the space is just like the motion of a wheel on the road .**

The following motion laws are derived from the motion of a wheel on the road ,

LAW OF MOTION ----- Nrusingh's 1st law

(a) INERTIA OF REST : A body is at rest, until the applied force on it , converts to the centripetal force as well as the centrifugal force .

(b) INERTIA OF MOTION : A body is at motion, as long as the applied force on it , converts to the centripetal force as well as the centrifugal force .

THE FORCE OF ACTION IS ALWAYS EQUAL TO THE SUM OF OPPOSITE REACTION AND ABSORPTION ----- Nrusingh's 2nd law

i.e. ACTION = REACTION + ABSORPTION

Force = (11/14) mass * acceleration ----- Nrusingh's 3rd law
where (11/14) is the constant of proportionality

The rocket moves forward in the space according to this law .When a force is applied to the rocket and that applied force converts to the centripetal force as well as the centrifugal force in it, then the centripetal force acts towards the backward direction of the rocket and simultaneously the centrifugal force drags the rocket towards the forward direction .Like this the rocket moves forward in the space by the above principle .

KEY WORDS :

Absorption, Action, Reaction, Centripetal force , centrifugal force ,Straight line path and cycloid path .

INTRODUCTION :

Action means the force exerts on the second body by the first body. Reaction means the force exerts on the first body by the second body. Absorption means the force absorbed in the second body .When a force is applied on a body, the body moves some distance by its reaction and absorption .So the relation of action, absorption and reaction is obtained from the motion of a wheel .

Centripetal force is a force, which is required to move a body uniformly on a circle. This force acts along the radius and towards the centre of the circle.

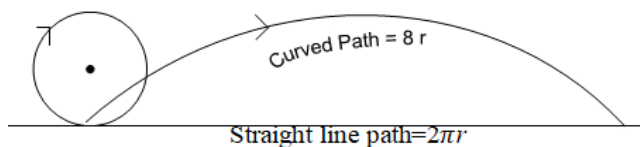
While moving along a circle the body has a constant tendency to regain its natural straight line path .This tendency gives rise to a force, which is called the centrifugal force .

It acts along the radius and away from the centre of the circle.

Centripetal force is the action force and centrifugal force is the combination of absorption force and reaction force.

The centripetal force and the centrifugal force are equal in magnitude and opposite in directions.

So where is centripetal force, there is centrifugal force .



When a force is applied to a wheel, then the wheel rolls on a road so every point on it, which touches the road simultaneously moves vertically in a curved path to cover horizontally on a straight line path in its every rotation.

The curved path is a cycloid path, that is traced out by a point on a circle, which rolls on a straight line .

Whose length is calculated by the length formula of calculus as $8r$ and the length of the horizontal straight line path is $2\pi r$ where r is the radius of the circle which generates the cycloid .As every point on the wheel moves on a cycloid path which is a part of a circular path, So the centripetal force acts on the vertical cycloid path

and the centrifugal force acts along the horizontal straight line path .

Suppose s_1 = length of the cycloid path and s_2 = length of the straight line path .

Here v_1 = velocity of the cycloid path = $\frac{ds_1}{dt}$

And v_2 = Velocity of the same point on the straight line path = $\frac{ds_2}{dt}$

As $s_1 > s_2 \Rightarrow \frac{ds_1}{dt} > \frac{ds_2}{dt}$ So $v_1 > v_2$

$\Rightarrow mv_1 > mv_2 \Rightarrow m \frac{dv_1}{dt} > m \frac{dv_2}{dt}$

$\Rightarrow ma_1 > ma_2$ where $\frac{dv_1}{dt} = a_1$, $\frac{dv_2}{dt} = a_2$

So $F_1 > F_2$ where $F_1 = ma_1$ and $F_2 = ma_2$

Here F_1 = **CENTRIPPETAL FORCE**

This Centripetal force is applied on the point of the wheel, which moves $8r$ length on the cycloid path. So

$F_1 = F_2 + \text{SOME ABSORBED FORCE}$ As $F_1 > F_2$

Hence $F_2 + \text{SOME ABSORBED FORCE}$

= **CENTRIFUGAL FORCE**

This Centrifugal force is utilized on that same point, which moves $2\pi r$ length on the Straight line path after absorbing some amount this force.

So **CENTRIFUGAL FORCE**

= **REACTION FORCE + ABSORBED FORCE**

And **CENTRIPPETAL FORCE = ACTION FORCE**

The magnitude of the centripetal force is equal to the magnitude of the centrifugal force and their directions are opposite to each other .

This implies that

ACTION FORCE

$$= \text{REACTION FORCE} + \text{ABSORPTION FORCE}$$

i.e. **ACTION = REACTION + ABSORPTION**

SUBJECT MATTER :

Rotation is motion and vice versa . Every motion is created from rotation .Vehicle moves on the road by the rotation of its wheels .

Ship moves in the water by the rotation of its fans .Plane moves in the sky by the rotation of its fans. Man moves on the road by the rotation of its feet. Hence rotation is motion.

When a cyclist applies force on the chainwheel of a bicycle then the chainwheel rotates as a result the chain is pulled to backward and simultaneously the bicycle is dragged to forward.

So rotation makes a body to move simultaneously on a cycloid path as well as on a straight line path. If the force is applied on a wheel and the applied force is converted to the centripetal force as well as the centrifugal force then every point of the wheel simultaneously moves on the cycloid path as well as on the straight line path.The centripetal force makes every point of the wheel to rotate in clockwise direction and it is always directed towards the backward direction of the wheel .

The centrifugal force drags the wheel to the forward direction after absorbing some amount of this force on a straight line path .

The vertical cycloid path of a point of the wheel is moved by the centripetal force and Simultaneously the horizontal straight line path of that same point is covered by the centrifugal force.

Like this principle the wheel moves forward on the road by the following law,

$$\text{ACTION} = \text{REACTION} + \text{ABSORPTION}$$

MOTION OF ROCKET :

The rocket moves forward in the space according to the exact principle of the motion of the wheel on the road.

Fuel burns in the Rocket and thereby hot gas is generated from the burning of that fuel .

The exhaust hot gas acts as the applied force in the Rocket .

The Inertia of rest states that ,

The Rocket is at rest, until the applied force on it , converts to the centripetal force as well as the centrifugal force .

The Inertia of motion states that ,

The Rocket is at motion, as long as the applied force on it , converts to the centripetal force as well as the centrifugal force .

This implies that ,

Motion is rotation , So when the applied force in the Rocket simultaneously converts to the centripetal force as well as the centrifugal force, then the Rocket moves forward.

The magnitude of the centripetal force is equal to the magnitude of the centrifugal force and their directions are opposite to each other .

So the hot gas in the Rocket is pushed towards the backward of it by the centripetal force and simultaneously the rocket is dragged towards the forward direction by the centrifugal force ,

As **Centrifugal force =**
Reaction force + Absorption force

Hence the rocket moves forward direction in the space by the exact principle of the motion of the wheel on the road .

This implies that the rocket moves to the forward direction in the space according to the following law,

ACTION = REACTION + ABSORPTION

CONCLUSION :

MOTION OF BOAT :

The boat moves on the water exactly according to the principle of the motion of the wheel on the road. The boatsman applies required force from the boat which is on the water.

So his applied force simultaneously converts to the centripetal force as well as the centrifugal force .The centripetal force acts along the hands which are towards the backward direction of the boat, and simultaneously the centrifugal force acts along the legs which are towards the forward direction of the boat .

The centripetal force as well as the centrifugal force are equal in magnitude and opposite in directions .

As **Centrifugal force =**
Reaction force + Absorption force

So the boat moves to the forward direction due to the centrifugal force .This implies that the boat moves forward according to the following law

ACTION = REACTION + ABSORPTION

MOTION OF BULLET :

When the trigger of a gun is pulled then a spring mechanism hammers a metal firing pin into the back end of the cartridge igniting the small explosive charge in the primer. Then the primer ignites the propellant , So the propellant chemicals burns ,they generates lots of gas very quickly .The generated lots of gas act as the applied force, then the applied force converts to the centripetal force as well as the centrifugal force in the gun.

So simultaneously the centripetal force acts towards the backward of the gun and the centrifugal force splits the bullet from the end of the cartridge and pushes the bullet in an extreme speed to the forward direction.

As **Centrifugal force = Reaction force + Absorption force.**

So the bullet moves to the forward direction due to the centrifugal force and the gun recoils due to the centripetal force .This implies that the bullet moves forward according to the following law

ACTION = REACTION + ABSORPTION
MOTION OF BALLOON :

When the balloon is blown up , it is filled with gas particles .If the opening of the balloon is released then the gas particles escape from the balloon with a force .This force is the applied force of the balloon and it converts to the centripetal force as well as the centrifugal force .

This centripetal force acts like an escaping force from the opening of the balloon and simultaneously the centrifugal force pushes the balloon to the opposite direction to the centripetal force .

As **Centrifugal force = Reaction force + Absorption force**

So the balloon moves by the centrifugal force.

This implies that the balloon moves according to the following law ,

ACTION = REACTION + ABSORPTION

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Figure	Caption	Meaning	Value
1	Cycloid	Cycloid is a curved path , that is traced out by a point on a circle, which rolls on a straight line .	8r = Length of the cycloid
2	Straight line	Length of the circumference of a circle = Length of the horizontal straight line	2πr
3	r	Radius of the circle	2πr/2 π
4	π	(Circumference of a circle/diameter)	22/7 =3.14159
5	Circle	A circle is a locus of a point whose distance from a fixed point is constant	