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A STUDY ON LINES OF FRICTION AND GRAVITATION THESIS

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Abstract— **what co-relates between the line of friction and line of gravitation? , what is the value of a line of friction when the body performs inverse motion? , what is the value of shortest path i.e. displacement between the distance of the line of friction and the distance of the line of gravitation? Do you know the measurement of the angle formed due to the line of gravity and line of friction? All such question is letting the mind to think on the topic that what is it? , Do the infinite rays of drag force can be the height of an object? All these questions would clarify accordingly when you start reading the entire article. The article is going to deal with the questions raised above and will introduce you to the concepts and laws between the line of friction and gravity when the body performs a motion. Here there are two types of motion – 1) Inverse (reverse) motion 2) motion when the body is away from the ground surfaces. The article is also going to introduce the two laws of ll.s (friction and gravitation) Thesis**

Aim to study: The main aim of this article is to study the co-relation between ll.s (friction and gravitation) and the laws depend on this concept. The new concept of finding the height of the object when the body is away from the earth's surface concerning the concept of skin friction. How this skin friction can affect the body when falling on the ground and the infinite rays of drag force directly proportional to the ll.of gravitation can relate to find the height of object and what is this ll.s of gravitation and friction and how they can result in finding the displacement between them**.**

Keywords: Ramanujan Summation of sums of all-natural numbers till infinite, trigonometric functions, ratios, and applications. Using the approx. values for the radius of earth = 6.4×10^6 m and universal gravitational constant = 6.67×10^-11 Nm^2/kg^2, r = radius of the earth, d = displacement between distances of ll.s of friction and gravitation, ll. (f) =line of friction, n= the infinite numbers in counting, h=height of the object

I. INTRODUCTION

Now let us introduce the common basic concepts regarding this article using diagrams,

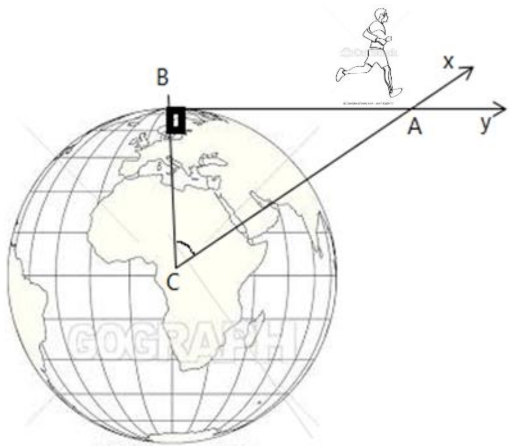


Fig..1

Now here in fig. 1,
A is the object at the initial position at A and its final position is at B after performing an Inverse motion. Now ray BY is a ll. of friction because frictional force always acts in the opposite Direction of motion of an object so here motion was in the direction to the final point B and so friction ll. is in opposite to Final point.
ll. AC = 6.4×10^6 is the radius of the earth with Centre C. AC is a line of gravitation which is pulling an object towards earth due to the force of gravity. Ray CX is a ll. of displacement Between distances of ll.s of friction and gravitation which intersects at points A on ll. of friction. Angle ABC = 90° because of ll. BC perpendicular on ray BY.

1.1 The thesis of 1st law of displacement and ll.gravity

1st Law proves that ll. (d) = ll. (r)-

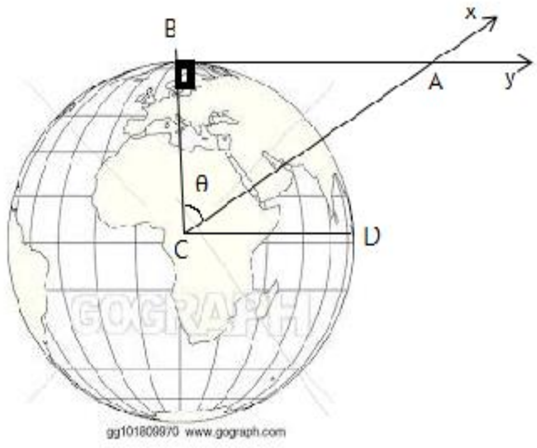


Fig. 2

Given: In fig.2, angle of elevation (θ) i.e. angle BAX=60° and CD = BC ... (same radii of circle), r = radius of earth, d= displacement between distances of ll.s of friction and gravitation.

Methodology: line AB // line CD

Angle BCA ≅ angle BAX…. (Corresponding angles)

I.e. angle BCA = 60°

From figure, $\tan\theta = \frac{AB}{BC}$ …….. (1)

$\therefore \tan\theta = 60°$…. (2)

$\therefore \sqrt{3} = \frac{ll.(f)}{r}$

$\sqrt{3} \times r = ll.(f)$…. (3)

NOW, $\therefore \sin\theta = \frac{AB}{AC}$……. (4)

$\therefore \sin\theta = 60°$…. (5)

$\sqrt{3} = \frac{ll.(f)}{d}$ …. (4 and 5)

$\frac{\sqrt{3}}{1} = \frac{\sqrt{3}\times r}{d}$.. (From 3)

$\sqrt{3} \times d = \sqrt{3} \times r$

d = r …..(6)

∴ Radius of earth = displacement between distances of ll. of friction and gravitation

∴ Hence proved 1st law of displacement and ll.gravity

1.2 The thesis of ll.Drag force and ll.gravity

2nd law proves that $\frac{[\text{tn} + \text{n}(\text{d})]}{G} = \text{h}$

By using the concept of skin friction which is when an object falls on the ground then, the resistance force i.e. drag force caused the motion of the body when traveling through the medium of fluid or air. Always the drag force acts opposite to the direction of approaching the flow velocity of an object.

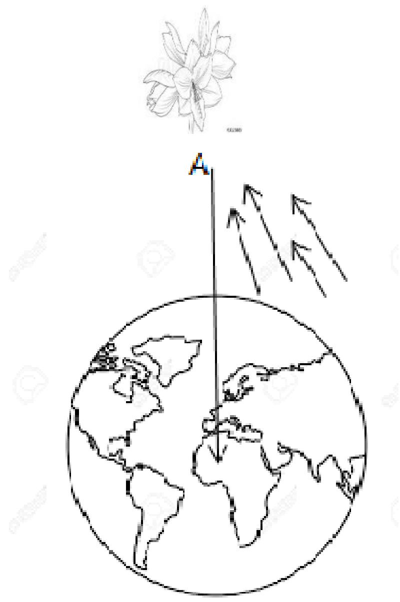


Fig.3

In fig.3,
Now here at point A some flowers are falling on the ground so now at the initial point when flowers are away from earth surface at point A they receive a force of gravity from the Centre of earth.
The motion of flowers while falling on the ground caught in resistance force i.e. drag force because it is traveling through the medium of air. It is called skin friction because here flowers a solid layer comes in contact with air molecules and approaching the drag force to the flowers and these forces ll.s are in infinite in counting. As shown in figure-3
n refers to the infinite rays of drag force exerting on flowers at point A and X is a single ray of drag force Now ll.s of drag force directly proportion to ll.gravity. To show calculations between two forces we use universal gravitational constant = G according to the newton law of universal law of gravitation.
According to the direct proportion,
$\therefore N(X) = h \times G$…. (7)
Now rays are till infinite so, t1=ray1, t2=ray2, t3=ray3, ⋯ ⋯, tn=rayn
1, 2, 3, 4 …… n

$t2 - t1 = d, 2 - 1 = 1$

$\therefore t3 - t2 = d$

$\therefore 3 - 2 = 1$

Here 1 is common difference =d and sequence is of arithmetic progression.
The sequence in arithmetic progression is a, (a+d), (a+2d), (a+3d),......... ....,(a+nd)
I.e. infinite numbers in A.P,
= [tn+n (d)] =n(x).... (8)
Now putting n(x) = [tn+n(d)] in eq(7),

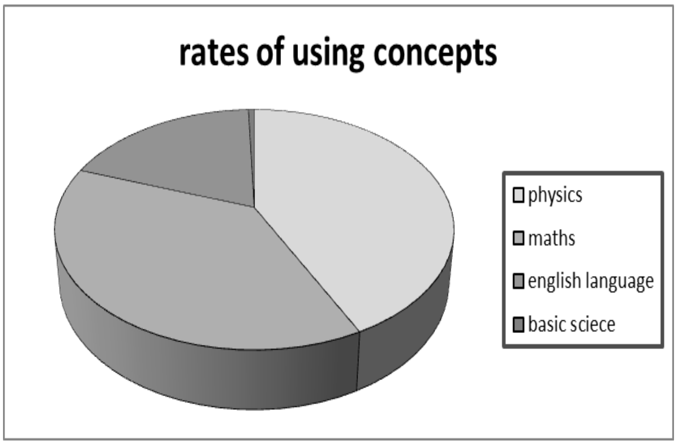
$$\frac{[tn+n(d)]}{G} = h$$

$$\frac{t1+n(1)}{G} = h$$

$$\frac{t1+n}{G} = h$$

Now here t1+n = -1/12
According to the **Srinivasa Ramanujan, et al. (1918)** in their work he states that if adding all natural numbers, i.e. 1, 2, 3, 4, and so on, all the way to infinity, sum is equal to -1/12.)
∴ Hence proved 2nd law of ll.Drag force and ll.gravity

II. RESULT



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List of abbreviations used –

Full forms	Abbreviated form
Line	ll.
Lines	ll.s
Arithmetic progression	A.P.

III. CONCLUSION

By these laws, the world may introduce to the new way of the concept of ll.s (friction and gravitation).this law represent the truth and also gave the world the formula for finding the height of an object with relation to infinite rays of drag force and stated that radius of earth = displacement between distances of ll. of friction and gravitation. The complete proof you had got using some notions of math and physics in these laws of ll.s (friction and gravitation).

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