

Are Kepler's elliptical orbits right?

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Abstract: Canonically, it is difficult to change the perception of the community when a new theory is launched in Physics. It seems Kepler's laws about the orbit of the planets around the Sun need some corrections .It is said that Newton's gravitational law predicts Kepler's laws. Does Newton confirmed Kepler personally or some other mathematicians, after Newton, have tricked to make these predictions? I don't know. But, using the same Newton's laws I find the contrary: orbits are not elliptical but expanding and then after compressing spirals along the orbit of the Sun in its galaxy: a spiral on a paraboloid.

Keywords: Planet's orbit, Newton's laws, Spirals

I. INTRODUCTION

Consider Newton's well-known law $F \cdot dt = m \cdot dv$ expression. (1)

From there we write the energy conservation equation: $F \cdot r \cdot dt = m \cdot r \cdot dv$ (2)

The total energy is: $\frac{1}{2} \cdot m \cdot V^2 + m \cdot g \cdot r + \frac{1}{2} \cdot I \cdot \omega^2 = C t$ (3)

Where,

$I \cdot \omega^2 = C t$ as innate.(since the existence)

V is variable

g is variable

Then, at positions #1 and #2 (or #n)

$$\frac{1}{2} \cdot m \cdot V_1^2 + m \cdot g_1 \cdot r_1 = \frac{1}{2} \cdot m \cdot V_2^2 + m \cdot g_2 \cdot r_2 = \text{Constant} \quad (4)$$

V is a vector

$$V^2 = V_r^2 + V_p^2$$

Where,

V_r is the radial component

V_p is the perpendicular component, so that

$$V_{\text{orbital}}^2 = V_{\text{radial}}^2 + V_{\text{perpendicular}}^2 \quad (5)$$

When eliminating $I \cdot \omega^2 = C t$, that means

$$\frac{1}{2} \cdot m \cdot V_{r1}^2 + \frac{1}{2} \cdot m \cdot V_{p1}^2 + m \cdot g_1 \cdot r_1 = \frac{1}{2} \cdot m \cdot V_{r2}^2 + \frac{1}{2} \cdot m \cdot V_{p2}^2 + m \cdot g_2 \cdot r_2 \quad (6)$$

Where,

g is variable

But, we know from physics,

(In an attraction field the work in the perpendicular direction to the direction of the field equal ZERO.)

Then, the equation of energy conservation (6) is written as:

$$\frac{1}{2} \cdot m \cdot V_r^2 + m \cdot g \cdot r + \frac{1}{2} \cdot I \cdot \omega^2 = m \cdot r \cdot dv \quad (7)$$

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Consequently,

$$V_{p1}=V_{p2}=....=V_{pn}=Ct \quad (8)$$

And these mean:

Kepler's law about "swept out areas equality in equal time" is wrong. Because V_p is constant.

It is said that Newton also confirmed this "area law". And mathematicians attribute to Newton the expression ($r \cdot V_p = Ct$).

This I don't believe. V_p is constant and not $r \cdot V_p$. (9)

When continuing, and writing the differentials, the expression (7)

$$\frac{1}{2}m \cdot V_r^2 + m \cdot g \cdot r + \frac{1}{2}I \cdot \omega^2 = m \cdot r \cdot dv \text{ is written as} \quad (10)$$

$$\frac{1}{2}m \cdot \left(\frac{dr}{dt}\right)^2 + K/dt^2 = m \cdot r \cdot d\left(\frac{dr}{dt}\right)/dt$$

Where,

$$(K/dt^2 = m \cdot g \cdot r + \frac{1}{2}I \cdot \omega^2) \text{ and} \quad (11)$$

$$r'^2 + 2 \cdot K/m/dt^2 = 2 \cdot r \cdot r'' \text{ the differential equation is found.}$$

The solution of this differential equation is

$$r = -a \cdot t^2 + a \cdot t \cdot t_{\max} + K \quad (12)$$

Where,

$$K = -a \cdot t_{\max}^2 / 4 = \text{Constant}$$

$t_{\max}$ is the total life time of the planet.

The expression (12) $r = -a \cdot t^2 + a \cdot t \cdot t_{\max} + K$ does not show any sign of ellipse. This is a parabola on Cartesian or a cardioidal looking spiral on Polar plane.

This expression (12) is the equation of the planetary motion, mathematically.

II. PHYSICALLY

Planets do not orbit the Sun on elliptical shapes, but on spiraled shapes: with the SUN at the barycenter of the spiral and having only one maximum point all along the life time ($t_{\max}$) of the planet. Fig.1

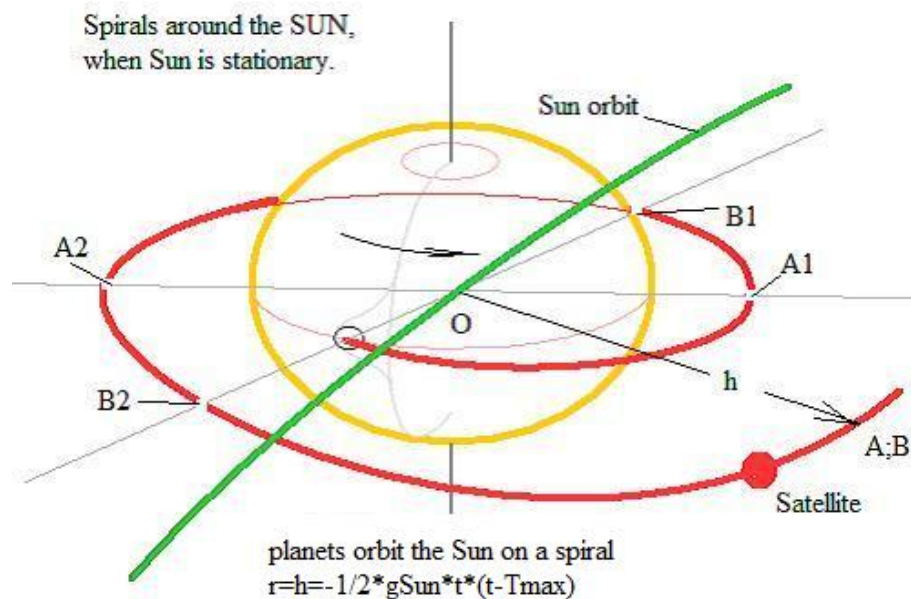


Fig.1-As the SUN is orbiting its galaxy, our Milky-Way, this planetary motion is on a paraboloid.

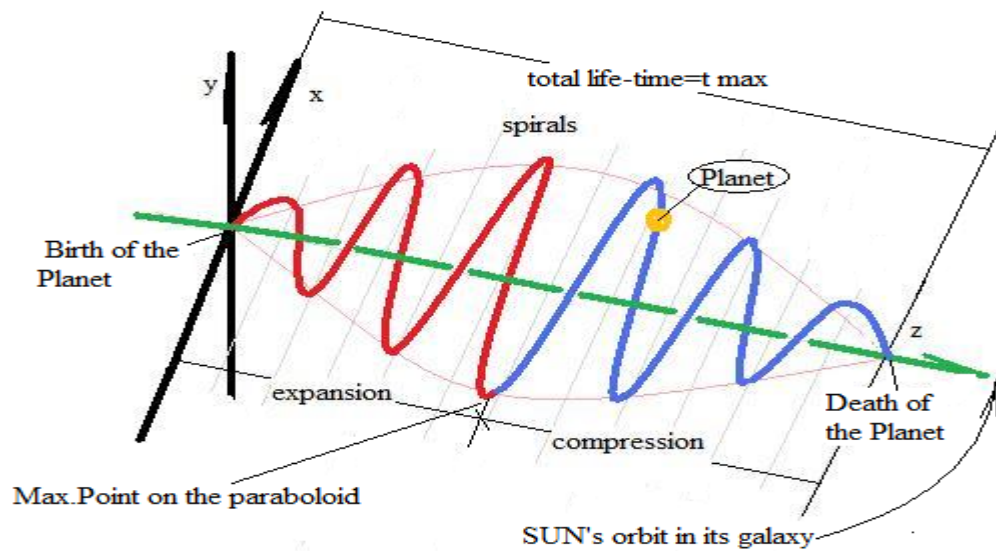


Fig.2

A simulation of the spirals for $t=t_{\max}=3$ cycles is shown on Fig.3. On a plane figure the paraboloid will be represented by a sinus (left side) with variable amplitude and on the right side the view will be a cardioidal looking spiral. The velocity of the planet along the orbit of the SUN will be its translation velocity by the SUN. This velocity is constant like the orbital, innate, velocity V_p of the planet around the SUN.

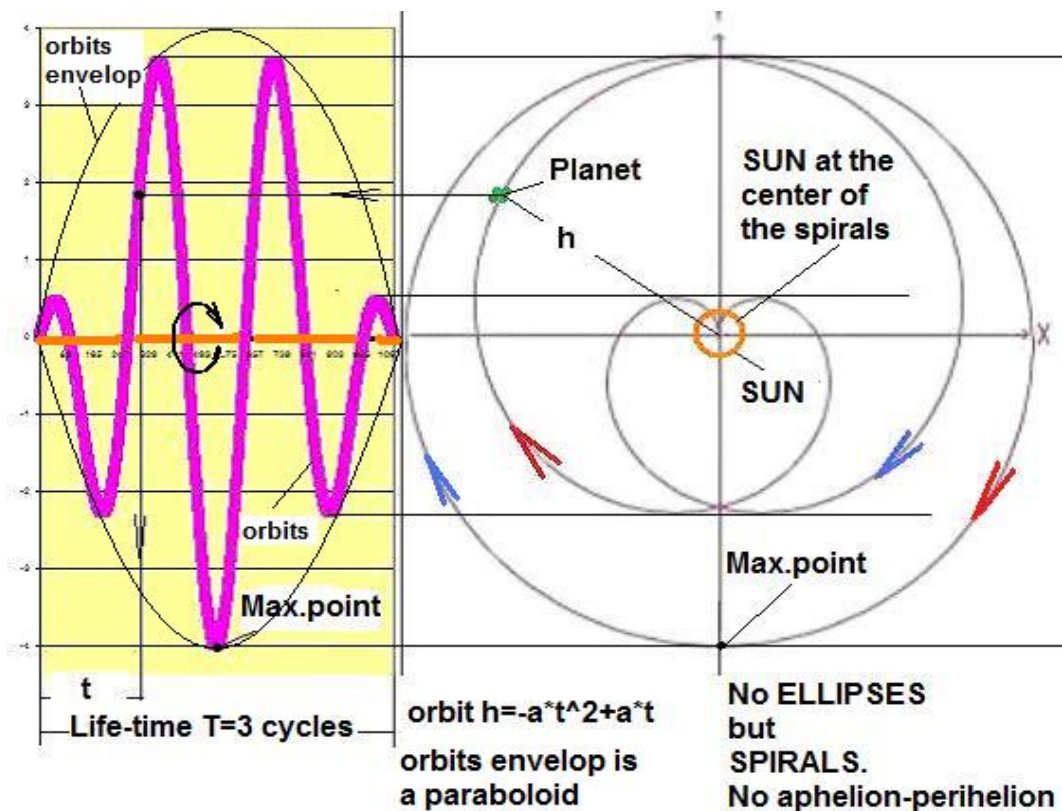


Fig.3

Variable amplitude creates variable eccentricity, in fact eccentricity do not exist: ellipse do not exist. Amplitudes have gone from zero to a max. value (expansion half life-time) and then will go to zero (compression half life-time). This theory accept that the planets have been created from a “small bang” of the SUN, billions years ago. They were ejected from the mass of the SUN. Kepler says the planets were at their actual position since the beginning and they will stay on their elliptical rigid orbit for eternity. No.

The Universe is not a dead media but living, changing. Elliptical orbits are mathematically blocked, rigid, invariable, dead orbits. Spiraled orbits are living. They have a life-time: billions of cycles around the SUN.

III. VARIABLE AMPLITUDES

Mean variable distances of the planet to the SUN. Then aphelion, perihelion reasoning is not valid. There is not a constant distance, repeating each cycle of the planet around the SUN. All distances are variable. An aphelion distance will be the perihelion distance after half cycle of the planet around the SUN, when on expansion mode.

And vice-versa, when on the compression mode.

Actually, for our EARTH, the distances to the SUN are so close in each cycle that anyone may comments the shape of the orbits in a wrong way, and claim for elliptical orbits as done Kepler. But Kepler corrected his wrong claim by the law of the periods which Newton confirmed ONLY for circular orbits. Probably Kepler discovered that the elliptical orbits will be transformed to circular orbits, with time. Then the orbits are not elliptical if their shape tends to be circular. An ellipse is an ellipse. A circular is a circular. A spiraled orbit, enveloped by a paraboloid, will reach to a circular form at its max.point; an instant circular shape and then the compression mode will start.

Table. I. resumes and compares Keplerian orbits with spiraled orbits for our EARTH.

The equation of the planetary motion (12) $r = -a \cdot t^2 + a \cdot t \cdot t_{\max} + K$ is written as $y = c \cdot x^2 + d \cdot x + 0$

For $y=1$; $x=0,5$ (unit equation) and $(dx \text{ steps})=0,5/k$ are considered for $k=631257$ excel working lines.(arbitrary)

Then the angle step= $0,2085607$ is found to fit the actual Keplerian eccentricity $e=0,016710218...$

For Earth's orbit assumed to be a spiral			Keplerian	
aEarth=	1		definitions	Evaluations
eccentr=e Earth	0,016710219		a2=aphelion	1,000000000
bEarth=	0,999860375		b2	0,999953463
We choose k=	63257	working lines	a1=perihelion	0,999813850
Projectile trajectory on Cartesian.		$y=r=c \cdot x^2 + d \cdot x$	b1	0,999581163
c=	-4		$a=(a2+a1)/2$	0,999906925
d=	4		$b=(b2+b1)/2$	0,999767313
(For $x=0,5$; $y=1$) dx=	7,90426E-06		eccen. e=	0,016710218
d angle=	0,2085607	approx.evalua.		
k=counter	x=k*dx	y=r	Angle o	
0	0	0	0	
1	7,90426E-06	3,16168E-05	0,2085607	
2	1,58085E-05	6,32331E-05	0,4171214	
3	2,37128E-05	9,48489E-05	0,6256821	
4	3,16171E-05	0,000126464	0,8342428	
5	3,95213E-05	0,000158079	1,0428035	

63252	0,499960479	0,999999994	13191,8814
63253	0,499968383	0,999999996	13192,08996
63254	0,499976287	0,999999998	13192,29852
63255	0,499984191	0,999999999	13192,50708
63256	0,499992096	1	13192,71564
63257	0,5	1	13192,9242

Table. I. (Ref: 2010.06.30-1201)

The Keplerian evaluations (a2,b2,a1,b1) are realized with Table II. Just go 90 degrees back from a2, evaluate (k), find (x), find (y=r=a2;b2;a1;b1).

Points	angle values o	k=counter	x	y=r
b1	12922,9242	61962,41286	0,489767242	0,999581163
a1	13012,9242	62393,94191	0,493178161	0,99981385
b2	13102,9242	62825,47095	0,496589081	0,999953463
a2	13192,9242	63257	0,5	1

Table.II.

Time equation: Ref: 2010.04.01-1321

From the expression (12) $r = -a \cdot t^2 + a \cdot t \cdot t_{\max} + K$, with reference $K=0$, we solve (t)
 $t = t_{\max}/2 (+, -) (t_{\max}^2/4 - r/a)^{(1/2)}$ (13)

When $r=r_{\max}$; $t=t_{\max}/2$ and then
 $(t_{\max}^2/4 = r_{\max}/a)$ and (14)

$a = 4 \cdot r_{\max}/t_{\max}^2$ (15)

With unit values (that is [$r_{\max}=1$ and $t_{\max}=1$])
 When $r=1$, $t=0,5$ and $a=4$ (16)

IV. SCIENTISTS

Have calculated the age of the Earth to be 4 600 000 000 years at the date 2009

Then, Table III is prepared. That is:

When $r=a1$; time for $a1=4600000000$ years and $x=\text{fictive unit time}=0,493178161$ units

Then time for $x_i = x_i \cdot 4600000000/0,493178161$

For $x=1$, $t_{\max}=1 \cdot 4600000000/0,493178161=9\,327\,258\,099$ years (our time's year)

x	t=Total life-time=2*t for a2	9327258099	
0,489767242	t for b1	4568185475	
0,493178161	t for a1	4600000000	Scientists evaluation
0,496589081	t for b2	4631814525	
0,5	t for a2	4663629050	

Table. III.

V. SCIENTISTS

Have also **measured** the distance of the Earth to the Sun=149 597 890 km.in 2009. Then we may prepare the Table IV: the Points column indicate some special dates. Period's column is about the comparison of the length of a year when 2009 is 1 year.(365 days).

It is evident, year's days are variable: for example,

When the real time is 100 000 000 years, (one cycle around the Sun)=0,0424331744 years=15,488 days
 Accurate distances should be known to confirm the following table.

date relative	real time=t	Point	r formular	r corresponding=km	periods
-4599997991	0		0,0000E+00	0,000000	0,000000000000
-4599997990	1		3,7309E+10	0,064167	0,000000000429
-4599997891	100		3,7309E+12	6,416709	0,000000042893
-4599996991	1000		3,7309E+13	64,167079	0,000000428930
-4599987991	10000		3,7309E+14	641,670171	0,000004289300
-4599897991	100000		3,7309E+15	6416,639790	0,000042892582
-4598997991	1000000		3,7305E+16	64160,206331	0,000428884434
-4589997991	10000000		3,7269E+17	640982,906250	0,004284705528
-4499997991	100000000		3,6909E+18	6347913,356248	0,042433174400
-3599997991	1000000000		3,3309E+19	57287562,936941	0,382943656070
-2599997991	2000000000		5,8618E+19	100816080,039350	0,673913783405
-1000	4599996991		8,6982E+19	149597887,365633	0,999999982390
-500	4599997491	Thales	8,6982E+19	149597887,803390	0,999999985317
0	4599997991	Christ	8,6982E+19	149597888,241143	0,999999988243
850	4599998841	El-Harezmi	8,6982E+19	149597888,985315	0,999999993217
1299	4599999290	Osman Bey	8,6982E+19	149597889,378409	0,999999995845
1453	4599999444	Fatih	8,6982E+19	149597889,513234	0,999999996746
1609	4599999600	Kepler	8,6982E+19	149597889,649809	0,999999997659
1881	4599999872	Atatürk	8,6982E+19	149597889,887939	0,999999999251
2009	4600000000	This year	8,6982E+19	149597890,000000	1,000000000000
2010	4600000001	Coming year	8,6982E+19	149597890,000875	1,000000000006
	4663629050	Max.Point	8,6998E+19	149625742,821763	1,000186184590
	6300000000		7,6287E+19	131204376,295209	0,877046971018
	6400000000		7,4938E+19	128884090,775701	0,861536822315
	6500000000		7,3509E+19	126426214,797849	0,845106938325
	6600000000		7,2000E+19	123830748,361650	0,827757319048
	6900000000		6,6992E+19	115218806,302984	0,770190049492
	7200000000		6,1265E+19	105368550,119210	0,704345162350
	8000000000		4,2472E+19	73047220,128618	0,488290443994
	9327258099		3,7309E+10	0,064167	0,000000000429
	9327258100		0,0000E+00	0,000000	0,000000000000

Table. IV.

VI. OLD TESTAMENT

Affirms Adam has lived 930 years and we understand $930 \times 365 = 339\,450$ days. No!

When Adam does have lived? We don't know. But we can estimate that he lived long time. How long? Compared to our era, we may say he may have lived 100 years in the condition of date 2009.

$100 \text{ years} = 365 \times 100 = 36500$ days

When 930 years = 36500 days?

When the period was $= 100/930 = 0,107526881$

At what real time we got this period?

$4\,342\,185\,804$ years ago, at real time $257\,812\,187$, when 1 year was $= 39,2473$ days,

$930 \text{ years} = 930 \times 39,2473 = 36500$ days

Then we may deduct that "homo sapiens" existence started at the real time $257\,814\,196 = 257\,812\,187 + 2009$.

This may be against "habitable zone" theory.

Also we may calculate how many days existed in Kepler time? And more! Table V.

In the time of Kepler there were $365 \times 0,999999997659 = 364,999999145578$ days /year.

For the last 10 000 000 years, year's length did not changed too much $= 364,9744858$ days

For the coming 63 629 050 years, year's length will reach to $= 365,0679574$ days.(ref days $= 365$ in 2009)

date	real time	Point	r Formular	r real=km	period
t1	4600000000,00	r1,0	8,6982E+19	149597890,000000	1,000000000000
3 months later	4600000000,25	r1,25	8,6982E+19	149597890,000219	1,000000000001
6 months later	4600000000,50	r1,5	8,6982E+19	149597890,000438	1,000000000003
9 months later	4600000000,75	r1,75	8,6982E+19	149597890,000657	1,000000000004
t2	4600000001,00	r2,0	8,6982E+19	149597890,000875	1,000000000006
3 months later	4600000001,25	r2,25	8,6982E+19	149597890,001094	1,000000000007
6 months later	4600000001,50	r2,5	8,6982E+19	149597890,001313	1,000000000009
9 months later	4600000001,75	r2,75	8,6982E+19	149597890,001532	1,000000000010
t Kepler	4599999600,00	r.Kepler	8,6982E+19	149597889,649809	0,999999997659
					364,999999145578

Table .V.

VII. WHAT ABOUT AREAS

Swept out in equal interval of time?

Considering Kepler's elliptical orbits, the area swept out in 2009 should be equal to the area swept out in 2010. Table VI shows that this is not correct.

	r formular	corresponding real (km;km ²)
a1	8,69815E+19	149597890,000219
a2	8,69815E+19	149597890,001094
b1	8,69815E+19	149597890,000438
b2	8,69815E+19	149597890,001313
Area1; in 2009	$\pi \cdot a1 \cdot b1$	70307362931318100,00
Area2; in 2010	$\pi \cdot a2 \cdot b2$	70307362932141000,00
Area difference		822888,00
Turkey's area	814578	1,010201601
Area1	$\pi \cdot r1^2$ approx.	70307362931318100,00
Area2	$\pi \cdot r2^2$ approx.	70307362932141000,00
Area difference		822896,00

Table.VI.

VIII. THE MOST

Trendy question, since Kepler era.

What is the length of the orbit for 1 cycle of the Earth around the Sun.

According Kepler and other mathematician this is the perimeter of an ellipse. No! Table VII gives the evaluation steps of these lengths; length adds due to translation along the orbit of the Sun is neglected.

Length of the spiral,on plane		
$r = -a \cdot \text{time} \cdot (\text{time} - T_{\max})$		
Tmax=	9327258100	
real time in 2009 t1	4600000000	
real time in 2010 t2	4600000001	
r real in 2009 (km)	149597890	
we write	$r = 149597890 = -a \cdot 4600000000 \cdot (4600000000 - T_{\max})$	

acceleration factor a=	6,879522917266270E-12	is found
let the years be	$2\pi n$	
d year=	$2\pi dn$	is written; then we write
	$r = -a \cdot 2\pi n \cdot (2\pi n - 2\pi n_{\max})$	
Tmax=	$2\pi n_{\max}$	
$r = -A \cdot (n^2 - n \cdot n_{\max})$	and	$dL = r \cdot dn$
	$L = \text{Integral}[n_1 \text{ to } n_2] B \cdot (n^3/3 - n_{\max} \cdot n^2/2)$	
L/B=	2,17454E+19	
$L_1 = 2\pi r$ (in 2009)	939951264,433068000	approximately
$L_2 = 2\pi r$ (in 2010)	939951264,438568000	approximately
$L = (L_1 + L_2)/2$	939951264,435818000	
B=	-4,32253E-11	is found
Example		
	$L = \text{Integral}[t_1 \text{ to } t_2] B \cdot [t^3/3 - T \cdot t^2/2]$	
$n_1 = t_1$	4663629049	
$n_2 = t_2$	4663629050	Max.point
L real=	940126162,9	
L approximate=	940126268,9	km

Table.VII.

IX. WHAT MEANS LIGHT-YEAR?

It means nothing, it has no sense; years length (evaluated as number of days) is not constant. Days are constant Because , $(I \cdot w^2 = \text{Constant}, \text{innate})$. Big distances should be evaluated with “light-day” or 1000 LD.

X. CONCLUSION

The Orbit of the planets is not elliptical but spiraled; expanding and then after compressing.

There is no aphelion, no perihelion, nor equality of swept out areas in equal interval of time. The Sun is not at a focus of an ellipse but at the barycenter of the solar system. There are no ellipses. There is only one max.point, for the total life-time of the planet.

And the trendy problem of orbit's perimeter evaluation is closed. Mathematical ellipse's perimeter evaluation is a different problem: there, the arc length on positive Cartesian $L_1^s = a^s + b^s$ and is due to Thales theorem.

XI. REFERENCE

No reference as this is an original work; will be used as reference for researchers.