May 31, 2022

The premise of the Poster is utility of a parametric solution curve definition for (index(0) of radicand(n). What happens when index solution curves operate on displacement integer(s) of Sir Isaac Newton captured as a radicand of square space math.

$$\left(\sqrt[index]{radicand}\right).$$

ALΣXANDΣR; CEO SAND BOX GEOMETRY LLC

Central Force +domain integers and inversed exponents of curved space.	5/31/2022 5:04 AM

The meter of central force field cause and effect is called 'inverse square'. Essentially, we take a number line integer as displacement, change a central force interpretation of displacement from radius into an inversed denominator (curvature?). Then alter this meter of space into a degree2 curve analytics for cause and effect. This paper investigates discovery of Sir Isaac Newton's displacement radii behavior when captured as radicand (n) by indexed Parametric Solution Curve(s).

A study of displacement integer as radicand in central force field space: $\left(9^{\frac{1}{3}}\right), \left(9^{\frac{1}{2}}\right), \left(9^{\frac{1}{1}}\right), \left(9^{\frac{1}{0}}\right)$

~~June 14, 2022. 16 pages; 1600 words~~. July 31, 2022. 19pages;2100 words.

ABSTRACT:

On the parametric geometry of inverse(d) exponents.
Exponents are a straightforward operation $(number^{exponent})$. Roots have an alternate script and symbol. Given we know the $(3^3 = 27)$, we also recognize $\left(\sqrt[3]{27} = 3\right)$. But not so often used is the written exponent for $\left(\sqrt[3]{27}\right)$; $\left(27^{\frac{1}{3}} = 3\right)$.
There are three elements in the parametric geometry of roots: index; radical; and radicand. $\sqrt[index]{radicand}$.
We never include the index when writing square roots. The unused term for square root of 4 is: $\left(\sqrt[2]{4} = 2\right)$. <u>*Or*</u> $\left(4^{\frac{1}{2}}\right)$.
We also have seldom seen exponents. $(n^0 = 1)$; $(n^1 = n)$
Setting these exponents $(0\ and\ 1)$ as radical index:
$\left(\sqrt[1]{n}\right) = n$, and $\left(\sqrt[0]{n}\right) = (1/0\ \leftrightarrow\ indeterminate\ infinity\ encountered)$.
This paper uses a GeoGebra parametric machine to find the $\left(\sqrt[0]{n}\right)$, losing the (indeterminate infinity encountered) tag.

Abstract history:

Abstract rejected for Contributed Paper; organizers recommend Contributed Poster Session.

Sponsor: Philosophy of Mathematics SIGMAA (POM-SIGMAA)
Organizers:
Jason Douma, University of Sioux Falls, jason.douma@usiouxfalls.edu
Tom Morley, Georgia Institute of Technology, Morley@math.gatech.edu

Players and reference: $\left(\sqrt[index]{integer}\right)$. Let index be curved space Mechanical Energy causality. Let integer be metered displacement in field space. Let $\left(G * M_1 * M_2 * \left(\frac{1}{r}\right)^2\right)$ be cause and effect of G-field potential.

The Poster: Size is 3ft by 4ft. Here's the outline.

The top 1 foot will be a banner (page3) 4ft across.

THE PARAMETRIC GEOMETRY of INVERSED EXPONENTS WORKING CENTRAL FORCE DOMAINS

Exploring: $\left(9^{\frac{1}{3}}\right), \left(9^{\frac{1}{2}}\right), \left(9^{\frac{1}{1}}\right), \left(9^{\frac{1}{0}}\right)$

PROBLEM: construct four parametric solution curves using inverse exponents.

Curved Space Parametric Solution: $\left(t, \frac{t^{index}}{\mp 2} \pm \frac{radicand}{2}\right)$.

Confirm solution curve using Square Space Parametric Abscissa ID: $\left(\sqrt[index]{9}, t\right)$.

The bottom 2ft will be in 4 sections 1ft across.

Sect1	Sect2	Sect3	Sect4
$\left(9^{\frac{1}{3}}\right)$	$\left(9^{\frac{1}{2}}\right)$	$\left(9^{\frac{1}{1}}\right)$	$\left(9^{\frac{1}{0}}\right)$

$\left(9^{\frac{1}{3}}\right)$, page (5-6)

$\left(9^{\frac{1}{2}}\right)$, page (7-8)

$\left(9^{\frac{1}{1}}\right)$, page (9-10)

$\left(9^{\frac{1}{0}}\right)$, page (11-12)

Parametric geometry construction for $(\sqrt[3]{9})$. ALΣXANDΣR

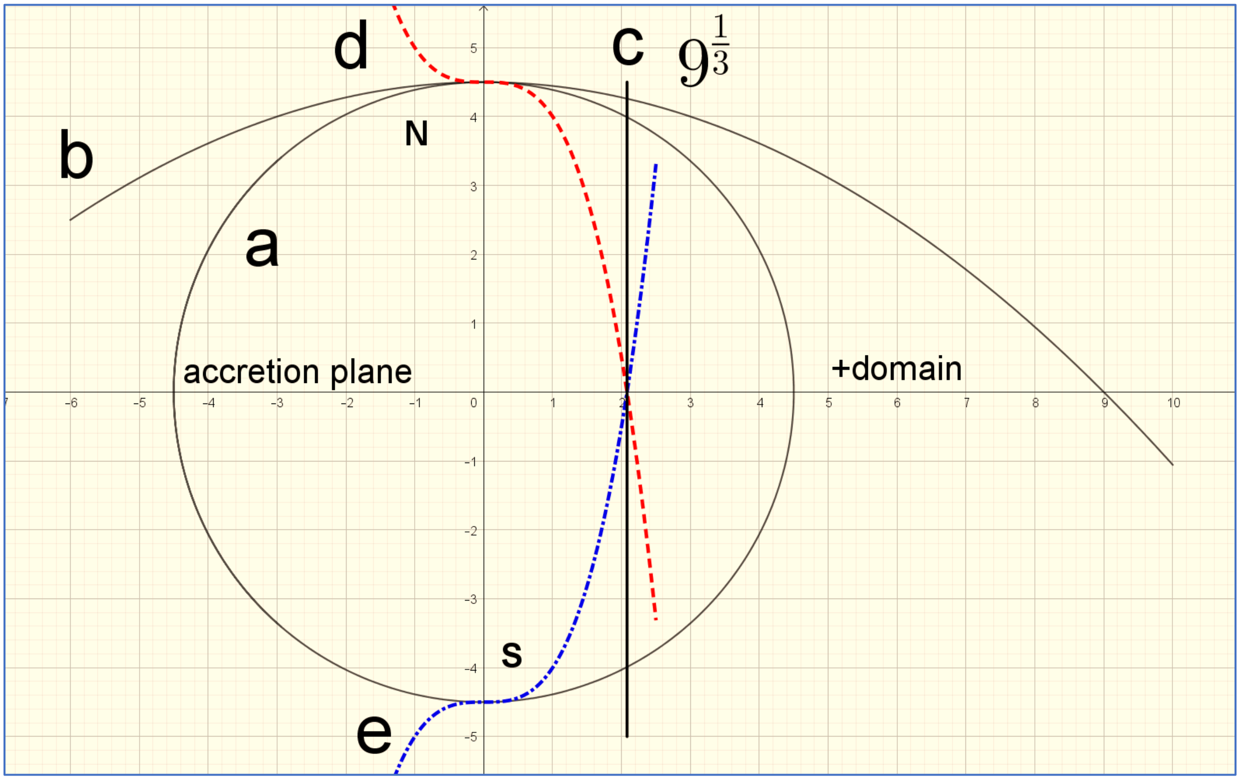

Figure 1: *parametric geometry* $\left(9^{\frac{1}{3}}\right)$.

Name	Value	Caption
Curve a	(4.5cos(t), 4.5sin(t))	Independent curve (AKA discovery curve).
Curve b	$(t, t^2 / -18 + 9 / 2)$	Dependent curve (AKA definition curve).
Curve c	(2.08, t)	abscissa definition $\sqrt[3]{9}$.
Curve d	$(t, t^3 / -2 + 9 / 2)$	(—) solution curve.

Curve e	(t, t^3 / 2 - 9 / 2)	(+) solution curve.

Created with GeoGebra

odd indices:

$(-)$ solution (d) comes from $Q2$ infinity. Flat lines at **N** pole and finds $\left(\sqrt[3]{9}\right)$ on accretion domain of (M_1).

$(+)$ solution curve (e) comes from $Q3$ infinity. Flat lines at **S** pole and finds $\left(\sqrt[3]{9}\right)$ on accretion domain of (M_1).

Parametric geometry construction for $\left(\sqrt[2]{9}\right)$. ALΣXANDΣR

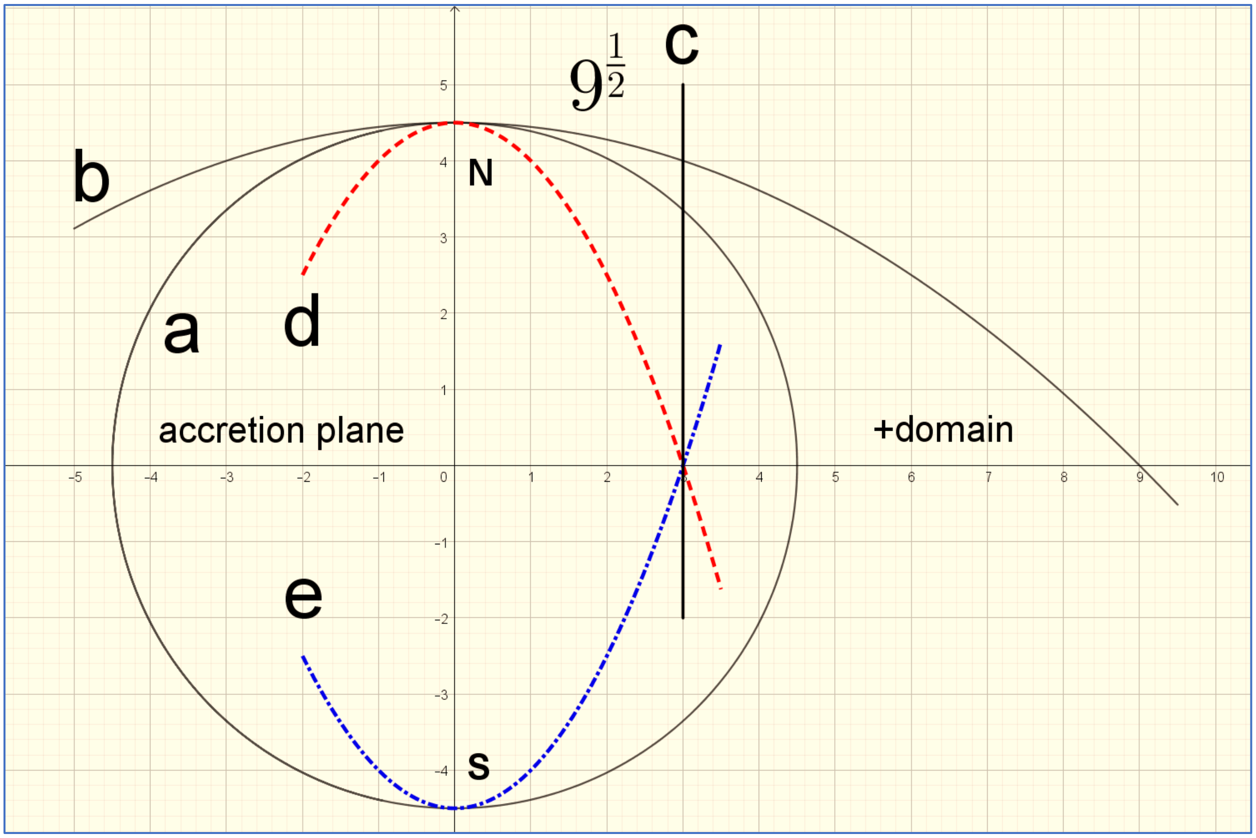

Figure 2*: parametric geometry for* $\left(9^{\frac{1}{2}}\right)$.

Name	Value	Caption
Curve a	(4.5cos(t), 4.5sin(t))	Independent curve (AKA discovery curve).
Curve b	(t, t^2 / -18 + 4.5)	Dependent curve (AKA definition curve).
Curve c	(3, t)	Abscissa definition $\left(\sqrt[2]{9}\right)$.
Curve d	(t, t^2 / -2 + 9 / 2)	$(-)$ solution curve.

Curve e	(t, t^2 / 2 - 9 / 2)	$(+)$ solution curve.

Created with GeoGebra

Parametric geometry construction for $(\sqrt[2]{9})$.

even indices:

$(-)$ solution (d) comes from $Q3$ infinity. Flat lines at **N** pole and finds $(\sqrt[2]{9})$ on accretion domain of (M_1).

$(+)$ solution curve (e) comes from $Q2$ infinity. Flat lines at **S** pole and finds $(\sqrt[2]{9})$ on accretion domain of (M_1).

Parametric geometry construction for $(\sqrt[1]{9})$. ALΣXANDΣR

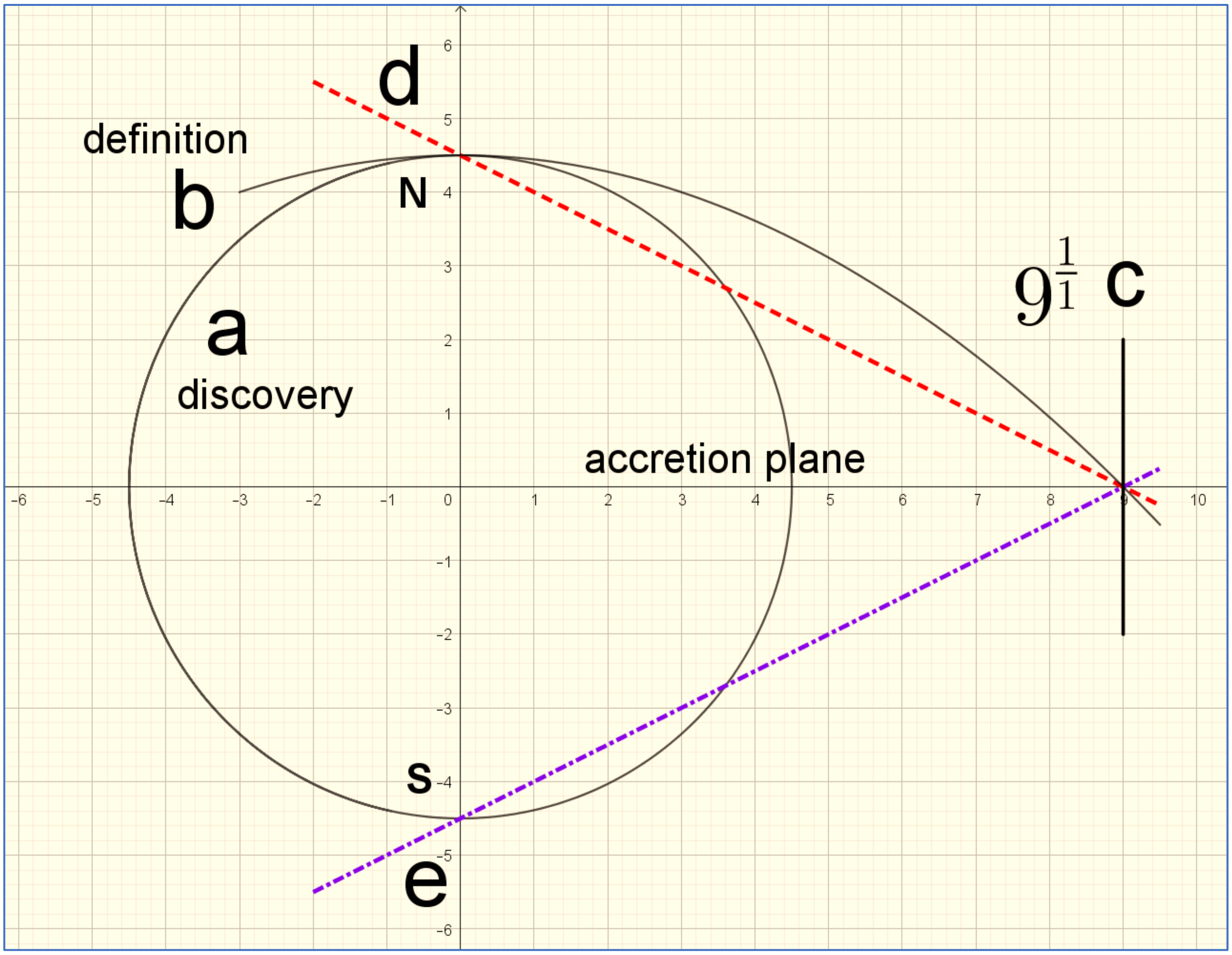

Figure 3*: parametric geometry* $\left(9^{\frac{1}{1}}\right)$.

Name	Value	Caption
Curve a	(4.5cos(t), 4.5sin(t))	Independent curve (AKA discovery curve).
Curve b	$(t, t^2 / -18 + 4.5)$	Dependent curve (AKA definition curve).
Curve c	(9, t)	Abscissa definition $(\sqrt[1]{9})$.
Curve d	$(t, t^1 / -2 + 4.5)$	$(-)$ solution curve
Curve e	$(t, t^1 / 2 - 9 / 2)$	$(+)$ solution curve

Created with GeoGebra

Parametric geometry construction for $\left(\sqrt[1]{9}\right)$.

odd indices:

$(-)$ solution (d) comes from $Q2$ infinity. Passes through **N** pole and finds $\left(\sqrt[1]{9}\right)$ on accretion domain of (M_1).

$(+)$ solution curve (e) comes from $Q3$ infinity. Passes through **S** pole and finds $\left(\sqrt[1]{9}\right)$ on accretion domain of (M_1).

Parametric geometry construction for $\left(\sqrt[0]{9}\right)$. ALΣXANDΣR

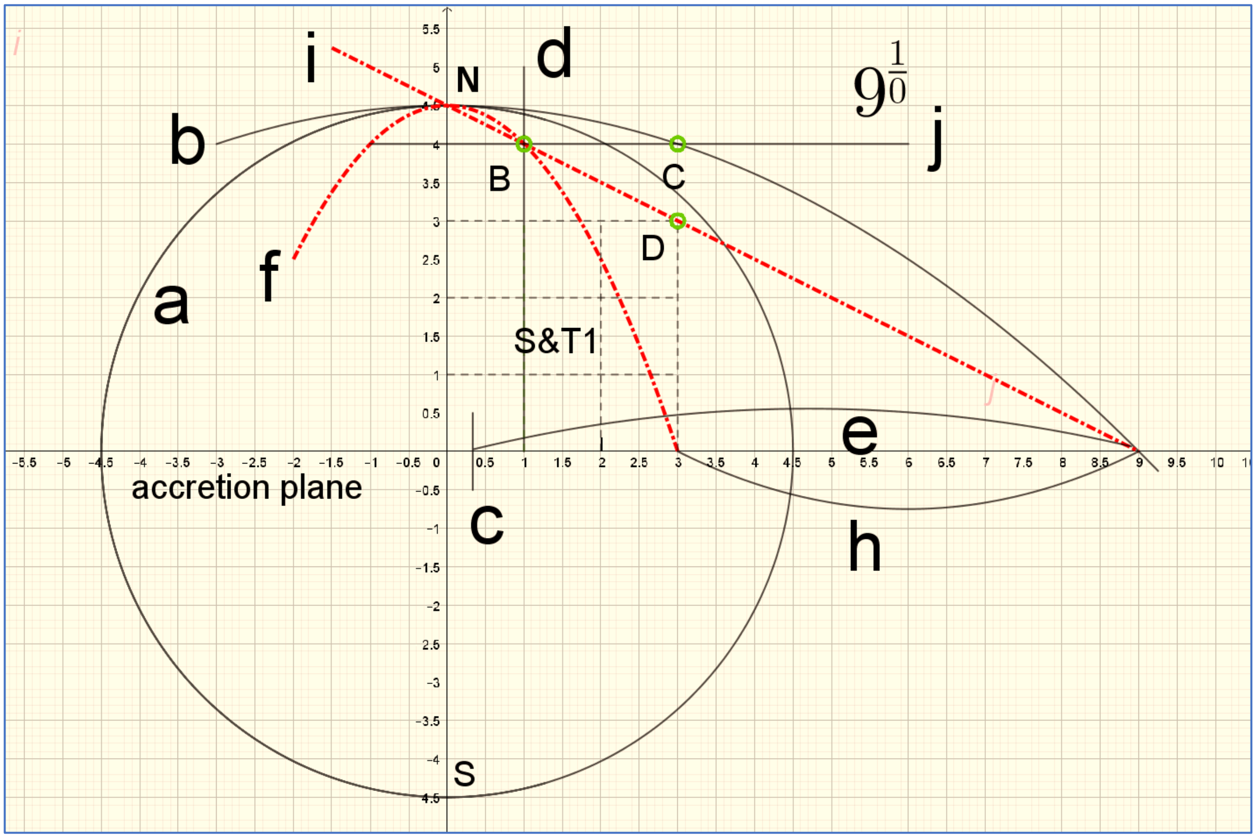

Figure 4*: parametric geometry* $\left(\sqrt[0]{9}\right)$

Name	Value	Caption
Curve a	(4.5cos(t), 4.5sin(t))	Independent curve (AKA discovery curve).
Curve b	(t, t² / -18 + 4.5)	Dependent curve (AKA definition curve).
Curve j	(t, t⁰ / -2 + 9 / 2)	$\left(parametric\ \sqrt[0]{9}\right)$. Rest energy of Central Force Field. Limits range of Surface Acceleration on Curve (a), home to Galileo's Incline Plane Kinematics and latus rectum solution curve $\left(9^{\frac{1}{2}}\right)$.

Curve i	(t, t^1 / -2 + 9 / 2)	curved space registration: $Parametric\sqrt[1]{9}$ with Central Force Spin.
Curve f	(t, t^2 / -2 + 9 / 2)	$(-)$ solution curve. $\left(parametric\ \sqrt[2]{9}\right)$
Curve c	(1/9, t)	Curvature value displacement $(r = 9)$.
Curve e		Best fit parabola linking Sir Isaac Newton's displacement radius (9) with curvature value $\left(\frac{1}{9}\right)$ in potential. $(inverse\ square\ connection)$
Curve h		Best fit parabola connecting Curved Space Mechanical Potential as motive energy on the period time curve (b). $\left(9^2 \leftrightarrow 9^{\frac{1}{2}}\right)$
Point B	B = (1, 4)	$(domain1, range4)$ +endpoint $\left(9^{\frac{1}{2}}\right)$ solution curve latus rectum. Joins: $\left(\sqrt[0]{9}\right)$, $\left(\sqrt[1]{9}\right)$, $\left(\sqrt[2]{9}\right)$
Point C	C = (3, 4)	$\left(domain\sqrt[2]{9}, range4\right)$. Intercept of $\left(\sqrt[0]{9}\right)$ with period time curve (b) @ $\left(\sqrt[2]{9}, 4\right)$
Point D	D = (3, 3)	Galileo's S&T1, our first spacetime square. Coordinates of (D) map 3seconds Earth Uniform Acceleration field with: $(3^2\ spacetime\ tiles)$. One tile of spacetime Earth: $(16ft., 1s)$. Freefall spacetime: $(9s * (16f) = 144ft\ drop)$. Terminal velocity: $(6s * (16ft) = 96ft/s)$.

Created with GeoGebra

Each tile has 1s range and 16ft domain/second/tile.

Solution curves; odd indices and even indices

- Travel from Q2 and Q3 infinity, polar flat line, and intersect abscissa ID.
- Red curves negative and blue positive. Sign curve with slope of +domain abscissa ID intercept.

- index(0) radicand(9): $\left(9^{\frac{1}{0}}\right)$
  - There is no domain, only (+/-) range solution curves as rest energy. For a central force to work, index solution curves of a CF field must pass through spin vertices making index(0) solution curves, rest energy of a CF field. **F** recognizes a radicand integer in space as displacement using index(1) solution curve to connect Sir Isaac Newton's displacement space (r) with CF spin. The solution curves(index 0,1,and2 of radicand9) working this construction, represent the study of Earths Uniform Acceleration Field, Galileo's S&T1, our 1st spacetime square. Index(0) of any radicand always has latus rectum of index(2) solution curve(f); the $\left(\sqrt[2]{displacement}\right)$. The Uniform Acceleration event(s) happening in this construction, index(0) of radicand(9), is 3s of freefall.
- Crossover triangle (BCD) Coordinates. (With respect to CF Earth)
  - POINT(B): two significant events. Event(1), Unification. All 3 solution curves, (index 0, 1, and 2) meet at (B), the + LR endpoint for $index(2)$ solution Curve(f).

These 3 indices, (index 0, 1, and 2), are the only curves needed to construct and analyze CF field intensity.

- Event(2): Quantifies (1st second) spacetime tile of Galileo's S&T1; Uniform Acceleration Earth with 1s Central Force range and 16ft/sec/tile as CF domain.

- Point (B, and D): Hypotenuse (BD) of CROSSOVER curve lies on $(index(1))$ solution curve(i). Leg (BC) of crossover, connects 1st sec tile experience with events on period time curve (b), point(C). Leg

(CD): points (C) and (D) share same abscissa ID, $(\sqrt[2]{9})$ or domain integer(3). The coordinates of (B,C,&D):

$$B: (1, \sqrt[0]{9}),\ C: (\sqrt[2]{9}, \sqrt[0]{9}),\ D: (\sqrt[2]{9}, 3)$$

After poster for MAA, I standardized protocol constructing indexed solution curves on the 1st ten integers as displacement radii. Principal change is for CrossOver Triangle (A, B, C).

INTEGER(9) square space; RADICAND(9) curved space.

Displacement radius(9) is perfect. Crossover pt.(A) just catches Galileo 1st spacetime tile for our first Euclidean SpaceTime Square.

Frame is 3s long. Drop is $(3^2 * 16)$ or 144ft. Terminal v is (1st derivative of 3^2) or 6*16 for 96ft/s.

(A):	$(1, \sqrt[0]{9})$.	(B):	$(\sqrt[2]{9}, \sqrt[0]{9})$.	(C):	$(\sqrt[2]{9}, 3)$
Rt.Δ (ABC):	base $(\sqrt{9} - 1)$alt.:	$(4 - (3))$			
Hyp:	$\{c \to \sqrt{5}\}$				
Area:	1				

The Beatles nailed it. Number(9), number(9), number(9)…

I say integer 9 is our registration with curved space ME. This number is source for both Euclid's 1st spacetime frame and rules of Nature found by Galileo's incline plane researching S&T1 providing domain and range of Euclid's space time tiles for our Earth $(16ft, 1s)$.

It's here and only here that the +latus rectum on curve (f), $\left(\sqrt[2]{9}\right)$, links these solution curves, $\left(\sqrt[0]{9}\right)$, $\left(\sqrt[1]{9}\right)$, and $\left(\sqrt[2]{9}\right)$ with counting integer(9) of our square space domain. It's the only **CSDA** ME construction to link $\left(\sqrt[1]{9}\right)$ and integer(9) with (3)seconds of Galileo's S&T1 providing (9) perfect tiles connecting our Earth with God's Creation. (maybe a Jovian 1st spacetime tile provides other parametrics). the hypotenuse (AC), found on index(1) solution curve, fits a perfect Euclidean SpaceTime Frame, 1st second tile and most remote corner of frame with nine square tiles. It never happens again on our square space number line.

I use Euclidean Geometry with respect to the tools Galileo had at the time.

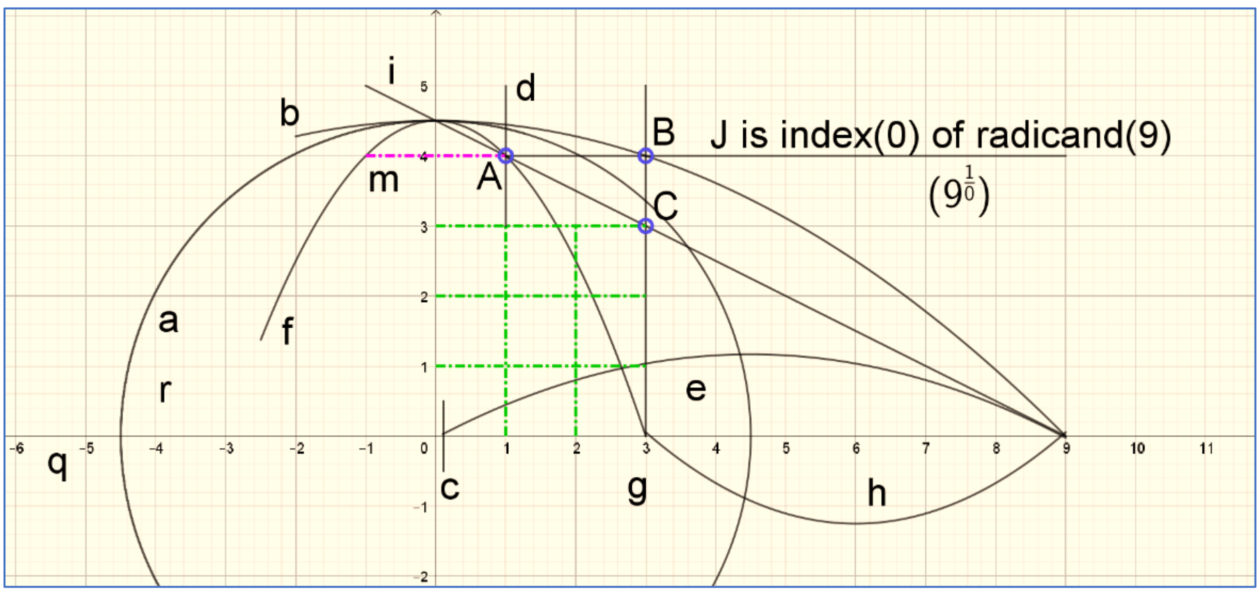

Figure 5: Our 1st spacetime frame. Galileo's discovery of Uniform Acceleration for Earth. Tile(1); $(16ft, 1s)$. Displacement integer(9) has $(3s^2)$ tiles to sum frame with nine tiles., each tile has range of 1s and domain of (16ft/second/tile).

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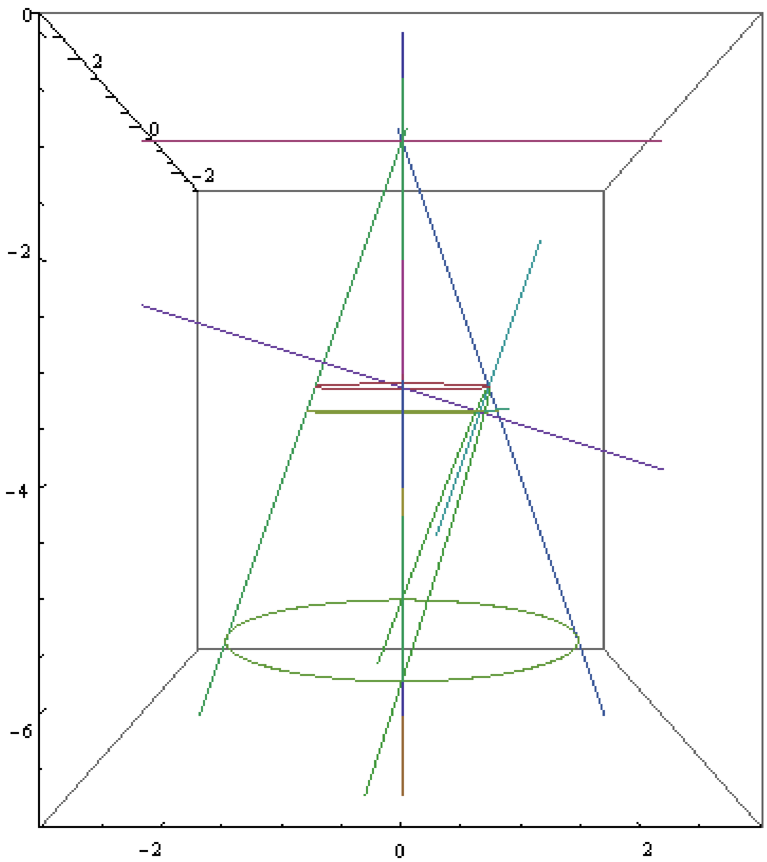
Using computer parametric geometry code to construct the focus of an Apollonian parabola section within a right cone.



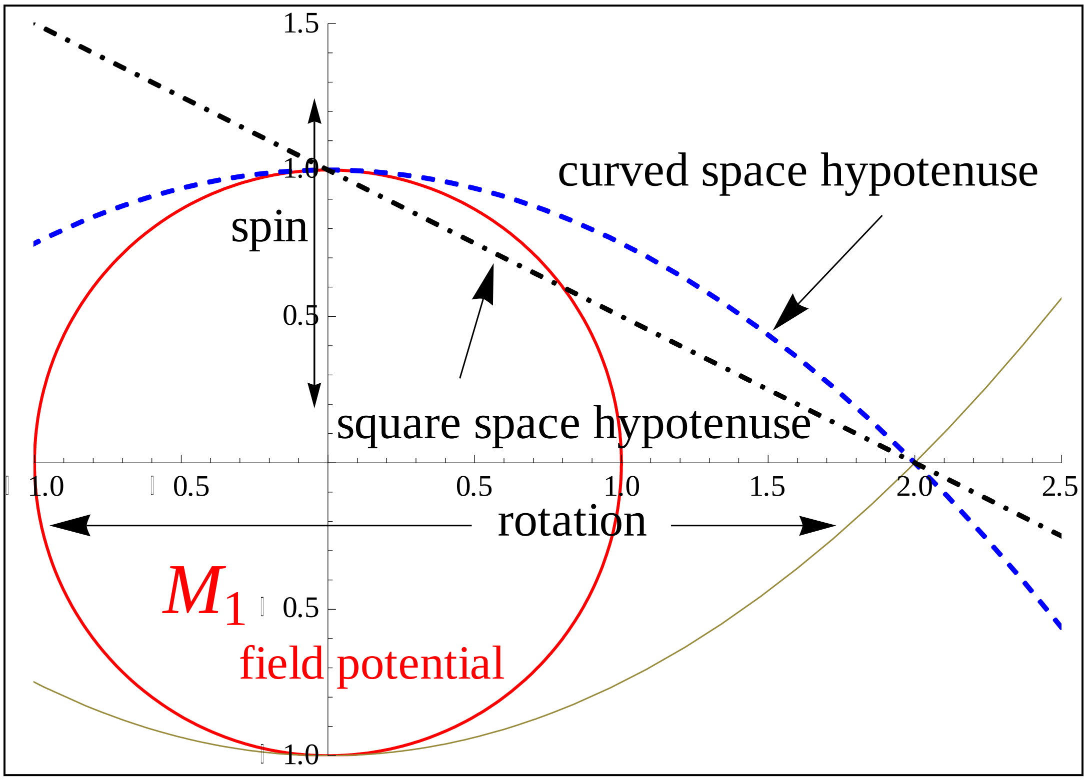
"It is remarkable that the directrix does not appear at all in Apollonius great treatise on conics. The focal properties of the central conics are given by Apollonius, but the foci are obtained in a different way, without any reference to the directrix; the focus of the parabola does not appear at all... Sir Thomas Heath: "A HISTORY OF GREEK MATHEMATICS" page 119, book II.

The computer is my sandbox, the unit circle my compass, and the focal radius of the unit parabola my straight edge. Armed with these as weapon and shield, I go hunting Curved Space Parametric Geometry.

ALΣXANDΣR; CEO SAND BOX GEOMETRY LLC

CAGE FREE THINKIN' FROM THE SAND BOX

The square space hypotenuse of Pythagoras is the secant connecting (π/2) spin radius (0, 1) with accretion point (2, 0). I will use the curved space hypotenuse, also connecting spin radius (π/2) with accretion point (2, 0), to analyze G-field mechanical energy curves.



CSDA demonstration of a curved space hypotenuse and a square space hypotenuse together.

We have two curved space hypotenuses because the gravity field is a symmetrical central force and will have an energy curve at the **N** pole and one at the **S** pole of spin: just as a bar magnet. When exploring changing acceleration energy curves of M_2 orbits, we will use the N curve as our planet group approaches high energy perihelion on the north time/energy curve.

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The foundation of human mathematics is geometry. If one would take some time to look at the written works (they happen to be library available) of Newton, Kepler, and the time-tested Conic Treatise of Apollonius, you will be face-to-face with the stick art of human mathematics. However, unlike art, freedom of interpretation is not invited. Only a single path of rigorous logic leading to an irrefutable conclusion is proffered. Proofing still rules today, as the only way to structure an argument advancing human math to the next level.

For me, it is not important to understand the proofing used with exploratory Philosophical Geometry of the Masters for this can be as difficult to fathom as a triple integral proof, simply witness the incisive descriptive language, explaining methods used by these great geometers of our past, Huygens, Newton, and Kepler, to name a few, as they ponder Questions of Natural Phenomena of Being using descriptive mathematical relations between lines and curves with the unique irrefutable perspective of picture perfect Classic Geometry. Geometry after-all, is one tongue spoken, written, and understood by all humans.

ALΣXANDΣR; CEO SAND BOX GEOMETRY LLC