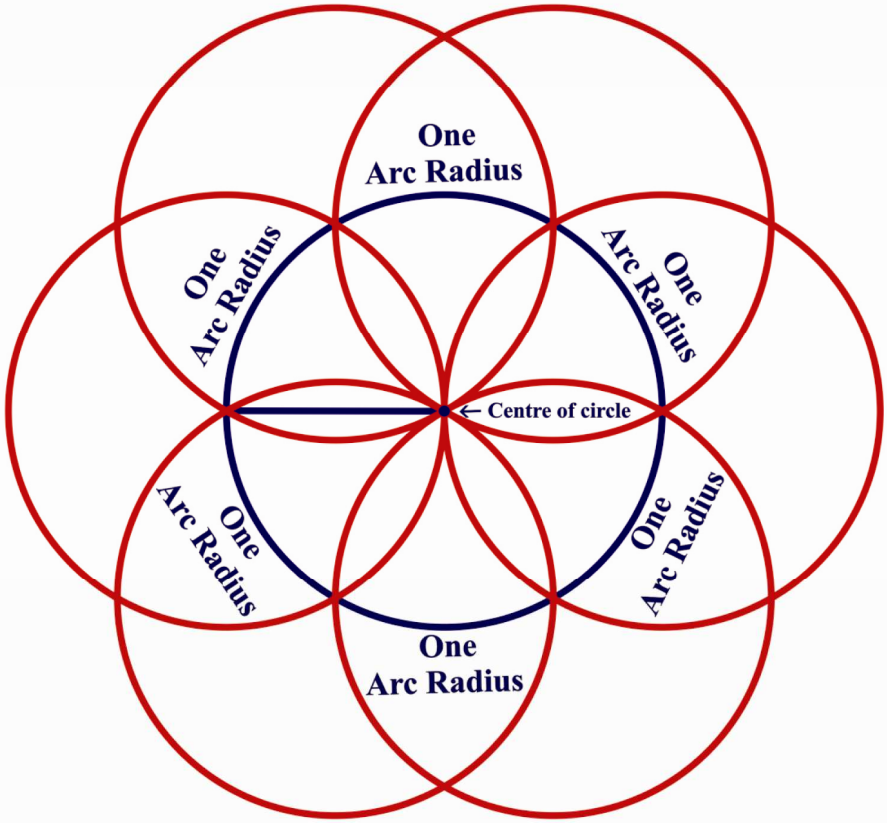
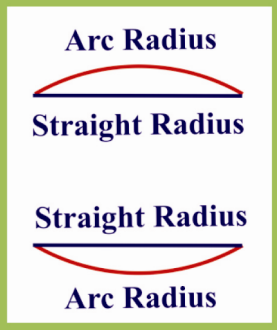
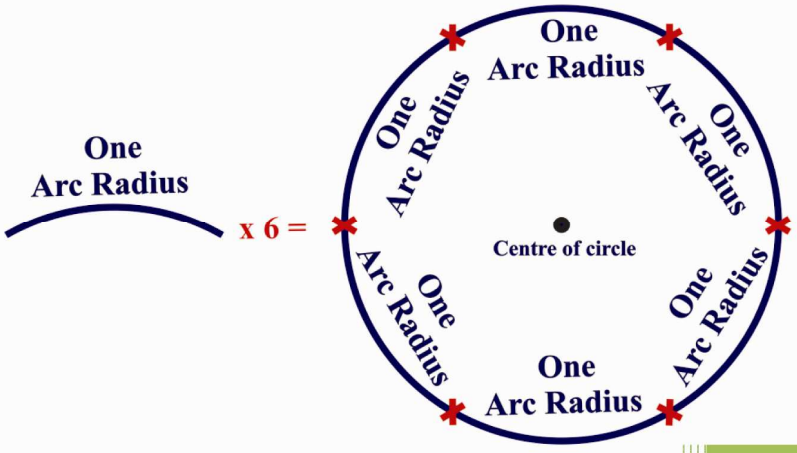
Arc Radius of Circle in Geometry

Formula of Arc Radius: $2\ominus r_s \div 6$ **OR** $d_s\ominus \div 6$







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Late Mr. Shantaram Bapurao Janorkar & Mrs. Sulabha Shantaram Janorkar

GREETINGS

My father and researcher Late Mr. Shantaram Bapurao Janorkar (B.Sc. (Agri.) & G.Sc. (UNI)) and mother Mrs. Sulabha Shantaram Janorkar in memory of his unforgettable work was published and dedication to the World.

: Dhananjay Shantaram Janorkar

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Author

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Editorial

Dear Reader,

Arc Radius of Circle in Geometry, This book has been launched in memory of my father and researcher late Mr. Shantaram Bapurao Janorkar and mother Mrs Sulabha Shantaram Janorkar by me, published by Om Publications, Mahan, Tq. Barshitakli, Dist.Akola, (Maharashtra State), India and it is certified by **ISBN, QR Code, ISO 9001:2008.**

This book is in 'Print/CD-ROM/Online' formats. I have been trying to deliver this book to the scholars and scientists of 511 universities of India and to the scholars and scientists of 10,877 universities all over the world. I sincerely request to honorable scholars and scientists to continue further my present work. There is such a great extent of knowledge in this research work that the yet to be in completed research will be completed with this research and logic and the world will get to know the real and true knowledge and you can put new theorems before the world created through this research. To help this real and true knowledge put forward before the world is the very primary objective of my efforts. While thinking over this research paper prepared by me, I am getting new concepts through this research and that inspires me to do research and prepare research on different new subjects. It is said that time and tide waits for none; 'Death' is the eternal truth for all living beings on earth. Hence, it is utmost essential to put forth my research papers in front of the world. I feel, after my death, there will be nobody to put forth or present this research in front of the world.

ॐ Purnamadah: Purnamidam Purnat Purnamudachyate । Purnasya Purnamadaya Purna Mevavashisyate ॥

In Geometry, symbol for measurement accepted by world scientists (world official) is degree and the very degree is the root, scale, source and base of the research. Degree: Closed chop (Compass), Tip of the compass means point, means 1 point, means 1° degree, means dot • = degree means unit of measurement. The base of this whole research is 36° measure of circle. This is a fundamental research, I am introducing the book first time before the World.

By transforming this research which is originally in Marathi language, into scientific and mathematical language I am publishing this book. If you look at this research with the unselfish vision of a scholar, scientist (researcher) and if you carefully read the work published in this publication, you will easily understand the research work and ways for further research on this work can be found. In this research many new theorems have been established, different new methods have been found and in the same way many new theorems and methods will be found.

In case you find any difficulty in understanding the book please send your queries in writing on the editorial address, I shall sincerely strive to solve them. You can contact me round the clock on phone or in person.

All the persons in the world can download free of charge this book from the website **'www.sbjanorkar.com, Dhananjay Janorkar - Academia.edu, Dhananjay Shantaram Janorkar - SSRN, Dhananjay Janorkar - ResearchGate and Dhananjay Janorkar - Google scholars'** I request sincerely all of you to help me to serve this book to all. I dedicate the first edition 2018 of this, Arc Radius of Circle in Geometry, book to the memory of my father and the researcher of this basic work, late Mr. Shantaram Bapurao Janorkar, the valuable research done by him, and his trust in education.

✹ Dhananjay S. Janorkar

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✹ The Original Research is in Marathi Language.

1 : INTRODUCTION:

This is a fundamental research, I am introducing the book first time before the World. In the research paper titled *"The self - proving theorem of Goba and its explanation on the basis of a formula (Goba Cha Swayamshidha Sidhanta Wa Sutrachya Aadharache Spastikaran, (In marathi),"* Published in, International Journal of Shantaram Janorkar Foundation of Mathematics, Science & Spiritual, Edition–1, 15 September, 2015, Page No. 81-156, (In english), Aawaruti -1 (Edition-1), 15 September, 2015, Pan Number 157-226, (In marathi), ISO 9001:2008, ISSN (P):2454-5236, ISSN (O):2454-633X, ISBN: 978-81-930845-0-2, which is researched by my father and researcher Late Shri Shantaram Bapurao Janorkar and compiled by me with providing diffetent examples and putting them in scientific and mathematical language, In this research paper, on the original circumference of circle of the first construction, there are six red circumference of circles. I have tried to explain clearly in scientific and mathematical language by giving different examples that these six red circumferences of circles divide the original circumference of circle in six arc radii. With the help of this research paper, the new formula of arc radius has emerged which is *The Theorem of the Formula of Arc Radius* [Kans Trijechyaa Sutrachaa Siddhant (In Marathi)], International Journal of Shantaram Janorkar Foundation of Mathematics, Science & Spiritual, Edition–2, Volume - 2, Issue - 2, 15 September, 2016, Page No. 1-18, (In english), Aawaruti -2, (Edition-2), Volume - 2, Issue - 2, 15 September, 2016, Pan Number 19-36, (In marathi), ISO 9001:2008, ISSN (P):2454-5236, ISSN (O):2454-633X, ISBN: 978-81-930845-1-9, and I am putting this formula before the world and I have tried to explain clearly this formula in scientific and mathematical language by giving different examples in this, Arc Radius of Circle in Geometry, book.

2 : METHODOLOGY: *(According to reference)*

On the original circumference of circle of the first construction, there are six red circumferences of circles. These six red circumferences of circles divide the original circumference of circle in six arc radii. From this point, a new formula of arc radius has emerged and in the research paper *The self - proving theorem of Goba and its explanation on the basis of a formula (Goba Cha Swayamshidha Sidhanta Wa Sutrachya Aadharache Spastikaran, (In marathi),* (Circumference of Cirlce ÷ diameter = the Constant of Goba, definite, complete, rational value, 6283185306º ÷ 2000000000º = 3.141592653 the constant of Goba), I have tried to explain clearly how six arc radii are created from the original circumferences of circle in scientific and mathematical language by giving different examples in this book.

As follows,

Straight Radius = r_s, Arc Radius = r_a, Straight Diameter = d_s, Arc Diameter = d_a, Length = ℓ

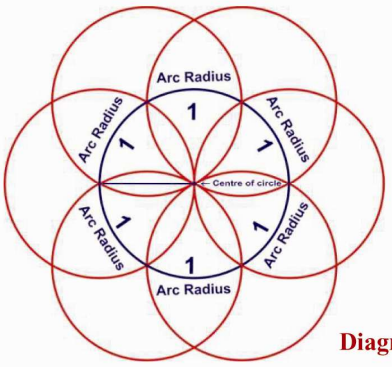


Diagram No.1

On the original circumference of circle there are six red circumference of circle of first construction. Original circumference of circle is divided in to six arc radius by this six red circumference of circle.

Diagram No.2

(1 Circumference of circle is to be made from 6 Arc radius)
Circumference of circle = 6 Arc radius

3 : DEFINITION:

Degree = unit of Measurement

Radius of the circle: A line segment (straight and arcual) joining centre of the circle and centre of the firstly constructed circle on the circumference of the original circle is called radius of the circle. The straight line segment is called straight radius and arcual line segment is called arc radius.

Measure of Radius: Distance between two apex of the measure of radius means sum of measure of straight radius and measure of arc radius is called measure of radius and it is in 10^0 measure according to construction.

Straight Radius: Straight line segment joining centre of the circle and centre of the firstly constructed circle on the circumference of the original circle is called straight radius.

Measure of straight radius: - Distance between two apex of the measure of straight radius is called "Measure of straight radius" and it is in four degree measure = 4^0

Arc Radius: An arcular line segment joining centre of the circle and centre of the firstly constructed circle on the circumference of the original circle is called arc radius.

OR

The segment of circumference of a circle means An (Arc) arcular line segment joining measure of centre of a circle and measure of centre on the circumference of a circle and the distance between the two measures of center are equal to straight radius, in clockwise and anti clockwise direction and which divide the circumference of the original circle in to six equal parts is called "Arc Radius" of circle.

OR

Length of arc segment of circumference of circle is equal to radius then that segment of circumference of circle is called "Arc radius".

OR

The segment of the circumference of a circle whose length (distance) equal to straight radius its segment of the circumference of a circle is called "Arc Radius".

Measure of arc radius: - Distance between two apex of the measure of arc radius is called "Measure of arc radius" and it is in six degree measure = 6^0

Diameter: It is a line segment (straight and arcual) passing through the center of the circle joining the opposite centers of the firstly constructed circles and making two equal part of the Circumference of circle.

Straight diameter: It is segment passing through the center of the circle joining the opposite centers of Firstly constructed circles and making two equal parts of circumference of circle is called straight diameter.

Arc diameter: It is an arc passing through the center of the circle, in clockwise or anticlockwise direction joining opposite centers of firstly constructed circles and making two equal parts of circumference of circle is called arc diameter.

System of homogeneous circle: As per sector of circumference of circle arcual radius and arcual diameter is called system of homogeneous circle.

System of anti-homogeneous circle: As per sector of circumference of circle straight radius and straight diameter is called system of anti- homogeneous circle.

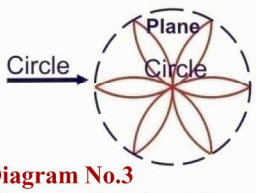
Circle: Around the measure of centre of circle, up to the equil distance of radius means 6^0 measure of centre of circle of construction means up to circumference of circle completely circular and in the one plane of diagram is called circle.

OR

A circle is a locus of a point in the plane such that its distance from a fixed point is always constant. Constant distance is called radius and fixed point is called centre.

OR

The circle is a locus of a point such that it distance from fixed point is always constant, constant distance is called radius and fixed point is called centre of the circle.



Circle in 6 centre of circle of construction means plane.

Diagram No.3

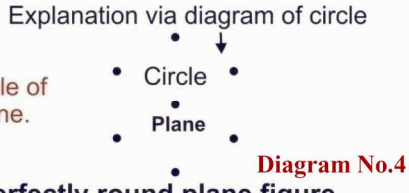


Diagram No.4

Plane :- A perfectly round plane figure

Measure of circle: - Measure of plane is called measure of circle. And it is in Measure of 36^0.

OR

Measure around the centre of circle is called measure of circle. And it is in Measure of 36^0.

Center of circle: - The fixed point at the middle of the circle is called its centre.

OR

The place at the centre of a circle is called the centre of circle.

Measure of centre: - Measure of the fixed point at the middle of the circle is called its measure of centre. And measure of centre of circle is 1^0 one Degree.

Measure of circumference: It is multiplication of measure of centre of circle and measure of radius is called measure of circumference.

OR

Measure surrounding the measure of centre of circle is called measure of Circumference.

Circumference of circle: Circle surround the circular line is called Circumference of circle. OR
The circumference of a circle is the distance around it. The term is used when measuring physical objects, as well as when considering abstract geometric forms. OR
A wire ring as shown in figure, we can break this ring at any point on it, straighten out the wire and measure its length. This length is called the circumference of the circle.

Explanation via Diagram

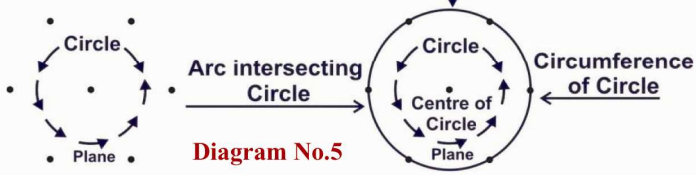
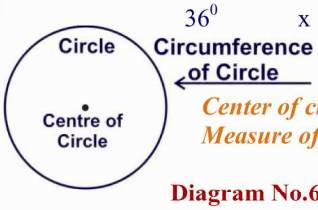


Diagram No.5

Measure of circumference of circle: Circle surrounds the measure of circumference means multiplication of measure of circle and measure of Circumference is called measure of circumference of circle.

Formula: Measure of circle x Measure of Circumference = Measure of circumference of circle

36^0 x 10^0 = 360^0 Measure of circumference of circle



Center of circle: - The fixed point at the middle of the circle is called its centre.
Measure of centre: - Measure of the fixed point at the middle of the circle is called its measure of centre of circle. And measure of centre of circle is 1^0 one Degree.

Diagram No.6

Goba: ⊖ = Angle made by end points of the diameter on the circumference of circle at two points at a distance equal to radius is 9^0, as per measure of circle. Measure of two such angle is 18^0 and it is in half of circle, it is called "Goba".

Goba radian: $\ominus^c$ = Angle made by end points of the diameter on the circumference of circle at two points at a distance equal to radius is 90^0, as per measure of circumference of circle. Measure of two such angle is 180^0 and it is in half of circumference of circle, it is called "Goba radian".

OR

Adition of measure of two right angle triangle on the diameter on the half circumference is called "Goba radian". This angle are of measurement $90^0 + 90^0 = 180^0$

4 : The following constants were created in the research

Explanation: - Goba means Godavari Bapurao

Late Godavari Bapurao Janorkar

Late Bapurao Uttamrao Janorkar

Constant No. A: Janorkar Constant = Measure of Arc radius ÷ Measure of straight radius

$$= \frac{3^0}{2^0} = \frac{18^0}{12^0} = \frac{36^0}{24^0} = \frac{72^0}{48^0} = \frac{108^0}{72^0} = \frac{216^0}{144^0} = \frac{432^0}{288^0} = \frac{648^0}{432^0} = 1.5^0 = 1.5^0 \textit{ Janorkar Constant}$$

Constant No.1: U.S.J. Constant = Measure of straight radius 1^0 become 2^0, 2^0 become 4^0
1^0 become 3^0, 3^0 become 6^0 Measure of arc radius
Measure of straight radius 4^0 And Measure of Arc radius 6^0

In constant No. 1. U.S.J. constant means Uday Shantaram Janorkar

Constant No.2: S.S.J. Constant = Measure of radius = Measure of straight radius + Measure of arc radius
$= 4^0 + 6^0 = 10^0$ = Measure of radius
By this radius however it may be small or large in the sense of measure they are congruent.

In constant No. 2. S.S.J. constant means Suvernesh Shantaram Janorkar

Constant No.3: D.S.J. Constant of measure of Circumference = Measure of centre of circle x Measure of radius / S.S.J.
$= 1^0 \times 10^0 = 10^0$ measure of Circumference

In constant No. 3. D.S.J. constant means Dhananjay Shantaram Janorkar

Constant No.4: J.D.J. Constant of measure of circle = $3^0 \times 4^0 \times 3^0 = 36^0$ Constant of measure of circle

In constant No. 4. J.D.J. constant means Jija Dhananjay Janorkar

Constant No.5: S.D.J. / Ja.D.J. Constant measure of Circumference of circle
= J.D.J. x D.S.J. Constant
$= 36^0 \times 10^0 = 360^0$ Measure of circumference of circle

In constant No. 5. S.D.J./Ja.D.J. constant means Shiva Dhananjay Janorkar Alias Jay Dhananjay Janorkar

Constant No.6: Su.S.J. Constant. This constant convert the value of Goba, obtained as per arc diameter in to the value of the Goba obtained as per diameter or converse the value of the Goba obtained from arc diameter.
= circumference of circle ÷ diameter = 6 ÷ 2 = 3, the value of Goba

The value of Goba obtained from diameter
= circumference of circle ÷ diameter = $6283185306^0 \div 2^0 = 3.141592653^0$ Constant of Goba
Constant of measure of arc radies = Measure of arc radies, Ratio of arc radius to straight radius
Straight radius = 1000000000^0
Arc radius = 1047197551^0
Ratio

$$\frac{Arc.Radius}{straight\ radius} = \frac{1047197551^0}{1000000000^0} = 1.047197551^0 \text{ Su.S.J. Constant}$$

The value of the Goba obtained from arc diameter 3^0 x Su.S.J. Constant
$3^0 = 3^0 \times 1.047197551^0 = 3.141592653^0$ the value obtained from diameter
Conversely, arc diameter = the value obtained from diameter ÷ Su.S.J. Constant

$$3^0 = \frac{3.141592653^0}{1.047197551^0} = 3^0 \quad \text{The value of Goba}$$

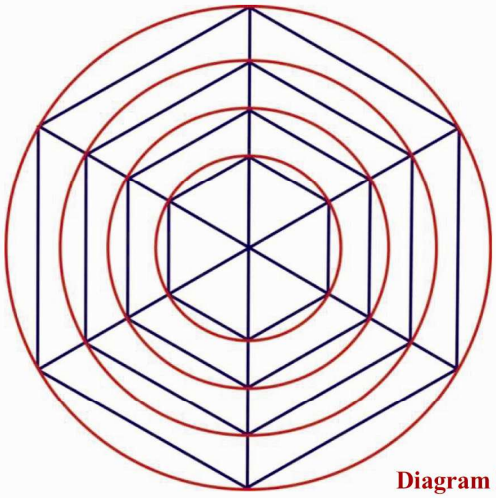
In constant No. 6. Su.S.J. constant means Sulabha Shantaram Janorkar

Constant No.7: Jn.D.J. Constant denote the distance of thundering Cloud from the earth

In constant No. 7. Jn.D.J. constant means Janhavi Dhananjay Janorkar

Straight Radius = r_s, Arc Radius = r_a, Straight Diameter = d_s, Arc Diameter = d_a, Length = ℓ

5 : Method No.1: All circles are congruent: - congruency
No Infinite, No Infinity. No infinite then all these are finite.



In every circle there are 6 equilateral tringles.

Sides of the equilateral tringles are the radius of the circle and the three angles are equal of 60^0.

Here ends the Infinity. It is a finite.

Radius of the circle however it may be small or large, all the circles are similar.

Goba of any circle = ⊖ = circumference of circle ÷ straight diameter = 3.141592653 is so much.

Diagram No.7

All circles are congruent:- congruency
Infinite = And + End = Infinite
अनंत = अन् + अंत = अनंत (In marathi)
End of speed = Static
गतिचा अंत = गतिशुन्य (In marathi)
And = Dynamic
अन् = गतिजन्य (In marathi)
End = Static
अंत = गतिशून्य (In marathi)
Equilateral tringles $6^0 + 6^0 + 6^0 = 18^0$
= 1 8 **अजन्** (In marathi)
Measure of circle = $6^0 + 6^0 + 6^0 + 6^0 + 6^0 + 6^0 = 36^0$
These or this arrow
Shows how many universe is large, the arrow is upto the end.
Equilateral tringles $60^0 + 60^0 + 60^0 = 180^0$
= 18 0 = **अजनम = अजन्म** (In Marathi)

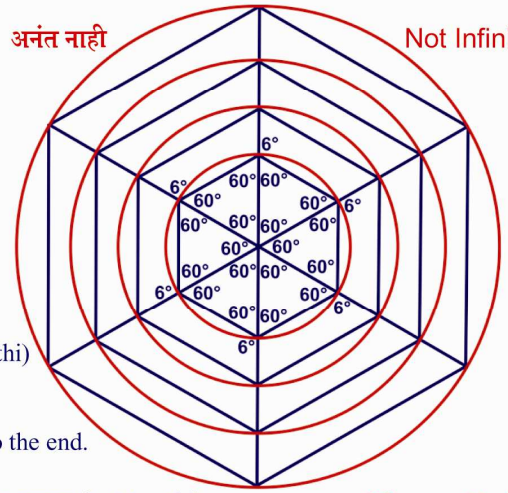


Diagram No.8

Measure of Circumference of circle = $60^0 + 60^0 + 60^0 + 60^0 + 60^0 + 60^0 = 360^0$ Measure of Circumference of circle
In this mathematical procedure arc radius and radius are not seen no proportional. Arc radius is in proportional with straight radius. Therefore circumference of circle is in proportional to diameter.

6 : Method No.2:

$$\theta = 60^0 = 60 \times \frac{\Theta^C}{180} = \frac{60 \times 3.141592653^C}{180}$$

$$= \frac{188.49555918^C}{180}$$

$\theta = 1.047197551^C$ or 1.047197551 radians

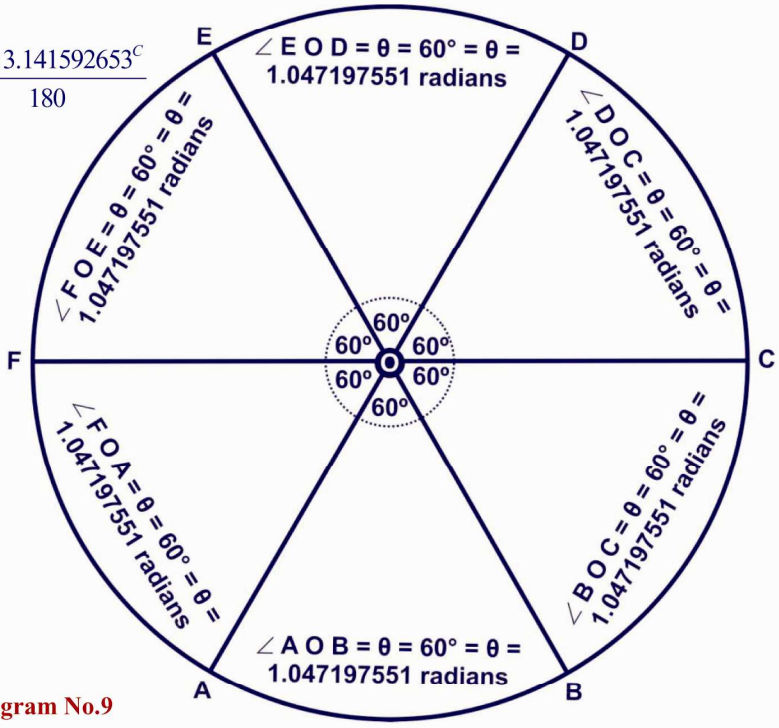


Diagram No.9

As per the first construction, the measure of one part of the circumference of a circle between two straight radii is 60^0, as per radians, which is 1.047197551^C or 1.047197551 radians.

$\angle$ A O B = $\theta = 60^0 = \theta = 1.047197551^C$ or 1.047197551 radians
$\angle$ B O C = $\theta = 60^0 = \theta = 1.047197551^C$ or 1.047197551 radians
$\angle$ D O C = $\theta = 60^0 = \theta = 1.047197551^C$ or 1.047197551 radians
$\angle$ E O D = $\theta = 60^0 = \theta = 1.047197551^C$ or 1.047197551 radians
$\angle$ F O E = $\theta = 60^0 = \theta = 1.047197551^C$ or 1.047197551 radians
$\angle$ F O A = $\theta = 60^0 = \theta = 1.047197551^C$ or 1.047197551 radians

$\angle$ 6 X $60^0 = 360^0 = \theta$ 6 X $1.047197551^C = 6.283185306^C$ or 6.283185306 radians

$$\theta = 360^0 = 360 \times \frac{\Theta^C}{180} = \frac{360 \times 3.141592653^C}{180}$$

$\theta = 6.283185306^C$ or 6.283185306 radians

Circumference of circle in degrees = 360^0

As per the first construction, the measure of one part of the circumference of circle between two straight radii is 60^0, therefore, the total measure of six parts of a circumference of circle are, 60^0 X 6 = 360^0 or 6 parts consisting of 60^0 each makes a circumference of circle.

Circumference of circle in radians = 6.283185306^C or 6.283185306 radians

As per the first construction, the measure of one part of the circumference of circle between two straight radii is 1.047197551^C radians, therefore, the total radians of six parts of a circumference of circle are, 1.047197551^C radians X 6 = 6.283185306^C or 6.283185306 radians or 6 parts consisting of 1.047197551 radians each makes a circumference of circle.

$$\Theta = Goba = \frac{Circumference\ of\ circle}{Straight\ diameter} = \frac{6.283185306}{2} = 3.141592653\ Goba$$

As per the first construction, the measure of one part of the circumference of circle between two straight radii is 60^0, therefore, the total degrees of 6 parts of a circumference of circle are 60^0 X 6 = 360^0 or six parts consisting of 60^0 each make a circumference of circle and as per radians one part is 1.047197551 radians and from these six parts of radian one circumference of circle is created and it is 1.047197551 radians X 6 = 6.283185306 radians.

7 : Method No.3:

Straight Radius = r_s, Arc Radius = r_a,
Straight Diameter = d_s, Arc Diameter = d_a
Length = ℓ

ℓ (Arc A G B), ℓ (Arc B H C),
ℓ (Arc D I C), ℓ (Arc E J D),
ℓ (Arc F K E),

$$\ell(\text{Arc F L A}) = \frac{\theta}{360^0} \times 2 \ominus r_s$$

$$= \frac{60}{360} \times 2 \times 3.141592653 \times 1$$

$$= \frac{60 \times 2 \times 3.141592653 \times 1}{360}$$

= 1.047197551 Length of one arc means one arc radius, as per first Construction

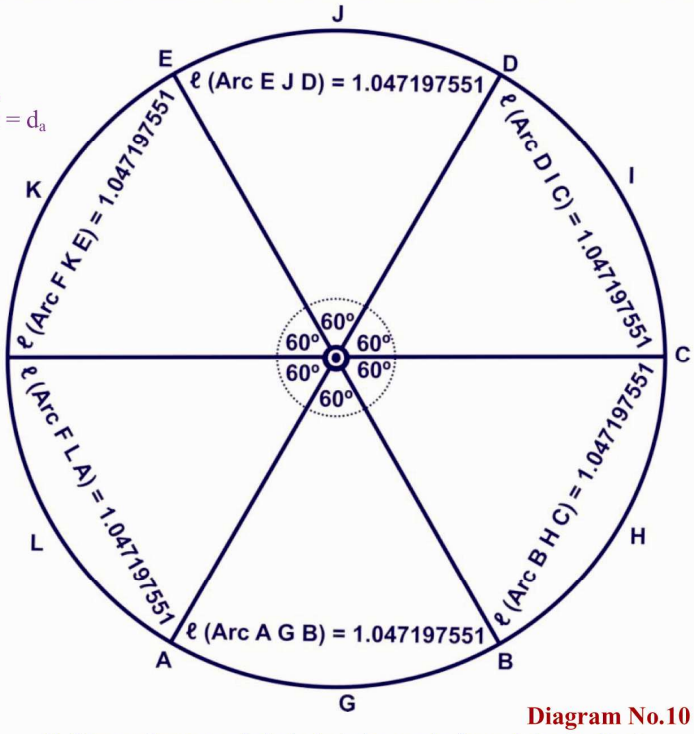


Diagram No.10

(1 Circumference of circle is to be made from 6 Arc radius)

OR

ℓ (Arc A G B), ℓ (Arc B H C), ℓ (Arc D I C), ℓ (Arc E J D), ℓ (Arc F K E),

$$\ell(\text{Arc F L A}) = \frac{\theta \ominus r_s}{180^0}$$

$$= \frac{60 \times 3.141592653 \times 1 \quad Unit}{180}$$

$$= \frac{188.49555918 \quad Unit}{180}$$

= 1.047197551 Length of one arc means one arc radius, as per first Construction

ℓ (Arc A G B) = 1.047197551 Unit
ℓ (Arc B H C) = 1.047197551 Unit
ℓ (Arc D I C) = 1.047197551 Unit
ℓ (Arc E J D) = 1.047197551 Unit
ℓ (Arc F K E) = 1.047197551 Unit
ℓ (Arc F L A) = 1.047197551 Unit

6 Arc OR 6 Arc radius x 1.047197551 = 6.283185306 Circumference of circle

Ratio of arc radius to straight radius

$$\frac{Arc\ Radius}{Straight\ Radius} = \frac{1047197551^0}{1000000000^0} = \frac{1.047197551^0}{1^0} = 1.047197551 \text{ Su.S.J. Constant}$$

Ratio

Straight Radius 1 : 1.047197551 Arc Radius

Circumference of circle = 6 Arc Radius = 6 x 1.047197551^0 = 6.283185306^0 Circumference of circle

$$\ominus = Goba = \frac{Circumference\ of\ circle}{Straight\ diameter} = \frac{6.283185306}{2} = 3.141592653\ Goba$$

For example:

$$\theta = 60^0 = 60 \times \frac{\ominus^C}{180} = \frac{60 \times 3.141592653^C}{180} = \frac{188.49555918^C}{180}$$

$\theta = 1.047197551^C$ or 1.047197551 radians

Straight radius = 5 c.m.

ℓ (Arc A G B) = $r_s\theta$

= 5 c. m. x 1.047197551

= 5.235987755 c.m. Length of one arc means one arc radius, as per first Construction

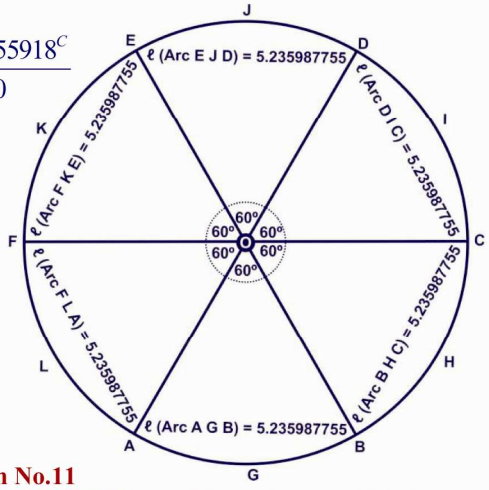


Diagram No.11

ℓ (Arc A G B) = 5.235987755 c.m.
ℓ (Arc B H C) = 5.235987755 c.m.
ℓ (Arc D I C) = 5.235987755 c.m.
ℓ (Arc E J D) = 5.235987755 c.m.
ℓ (Arc F K E) = 5.235987755 c.m.
ℓ (Arc F L A) = 5.235987755 c.m.

6 Arc OR 6 Arc radius x 5.235987755 c.m. = 31.41592653 c.m. Circumference of circle

8 : Method No.4:

As per the Measure of two equilateral triangle, Measure of circle and Measure of circumference of circle

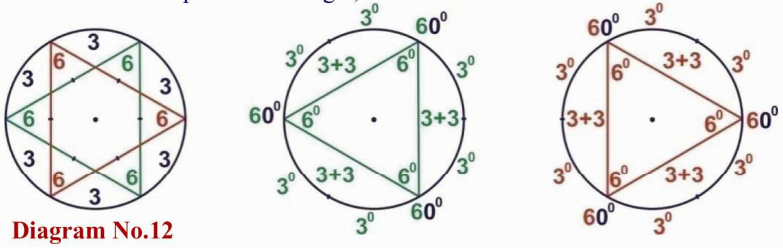


Diagram No.12

The measure of 2 arc radius opposite of the angle as per original 3^0

Measure of triangle:

Measure of three angles = $6^0 + 6^0 + 6^0 = 18^0$

Measure of three angles = $6^0 + 6^0 + 6^0 = 18^0$

Measure of circle = 2 (Measure of equilateral triangle)

= $18^0 + 18^0 = 36^0$ Measure of circle

= $\ominus + \ominus = 2\ \ominus$ Goba

Measure of circle = $2\ominus = 18^0 \times 2^0 = 36^0$

Measure of circumference of circle = As per Measure of 2 equilateral triangles, Measure of 2 equilateral triangles.

= As per measure of circle, Measure of angle x Measure of circumference

= $6^0 \times 10^0 = 60^0$ Measure of angle

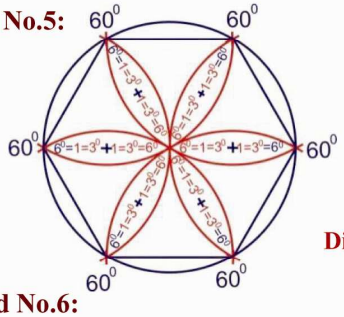
= $60^0 + 60^0 + 60^0 = 180^0$

= $60^0 + 60^0 + 60^0 = 180^0$

$\ominus^c$ = Goba Radian

Measure of circumference of circle = $2\ominus^c = 180^0 \times 2^0 = 360^0$

9 : Method No.5:



Measure of circle 3^0 as per measure of original arc radius
$= 12$ arc radius x $3^0 = 360^0$
$= 36^0$ Measure of circle
Measure of circumference of circle $= 60^0$ x $6^0 = 360^0$

Diagram No.13

10 : Method No.6:

As per measure of circle:

Diagram No.14

$$\ominus = \text{Goba} = \frac{6^0 \quad 6^0}{2} = \frac{36^0}{2} = 18^0 \ominus \text{Goba}$$ Measure of circle

Measure of circle $= 2\ominus = 2 \times 18^0 = 36^0$

As per measure of circumference of Circle:

$\ominus^C$ = Goba Radians

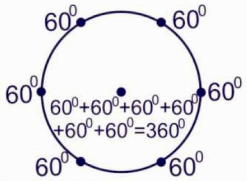


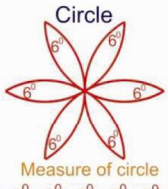
Diagram No.15

$$\ominus^C = \text{Goba Radian} = \frac{60^0 \quad 60^0}{2} = \frac{360^0}{2} = 180^0 \ominus^C \text{Goba Radian}$$ Measure of circumference of Circle

Measure of circumference of Circle $= 2\ominus^C = 2 \times 180^0 = 360^0$

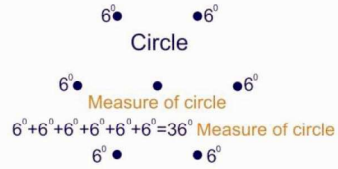
11 : Method No.7, 8 & 9: ***Circle and Measure of circle*****:-** Explanation via diagram is as follows

Diagram No.16



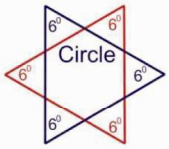
$6^0+6^0+6^0+6^0+6^0+6^0=36^0$ Measure of circle

Diagram No.17



- One angle of triangle is equal to opposite of two arc radius. = Measure of angle = 3°x 2 = 6°
- Original circumference of circle is into 6 arc radius.

Diagram No.18



Measure of circle =
2(Measure of equilateral triangle)
= (6°+ 6°+ 6°) + (6°+ 6°+ 6°)
= 18° + 18° = 36°Measure of circle

$6^0 + 6^0 + 6^0 + 6^0 + 6^0 + 6^0 = 36^0$ Measure of circle
$60^0 + 60^0 + 60^0 + 60^0 + 60^0 + 60^0 = 360^0$ Measure of circumference of circle

Formula: Measure of circle x Measure of Circumference = Measure of circumference of circle
36^0 x 10^0 $= 360^0$ Measure of circumference of circle

12 : Method No. 10:

36^0 Measure of circle is the original base of Goba Mathematics. 36^0 Measure of circle is explained and proved by different methods on the back pages.

Arc Radius 6^0 according to measure of circle and Arc Radius 60^0 according to measure of circumference of circle.

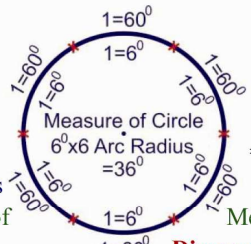
Explanation via diagram:-

Note:

1 digit shows arc radius.

6^0 digit shows measure of arc radius according to measure of circle.

60^0 Number shows measure of arc radius according to measure of circumference of circle.



Measure of circumference of circle
$= 60^0$ x 6 Arc radius
$= 360^0$

Measure of circle $= 36^0$

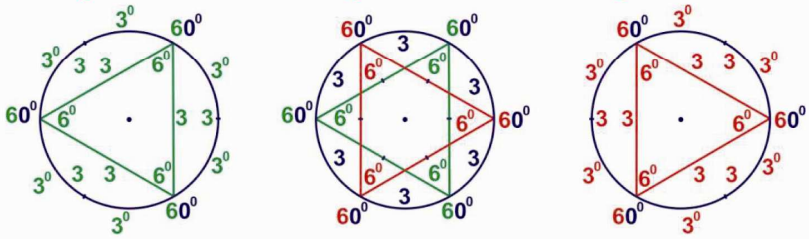
Measure of circumference of circle $= 360^0$

Diagram No. 19

13 : Method No.11:

Measure of circle and Measure of circumference of circle : As per Measure of equilateral triangle

Diagram No.20 **Diagram No.21** **Diagram No.22**



Measure of circle = Measure of equilateral triangle + Measure of equilateral triangle

$= 6^0 + 6^0 + 6^0 = 18^0 + 6^0 + 6^0 + 6^0 = 18^0$

$= 18^0 + 18^0 = 36^0$ Measure of circle = 2 Equilateral triangle

Measure of circumference of circle = Measure of equilateral triangle + Measure of equilateral triangle

$= 60^0 + 60^0 + 60^0 = 180^0 + 60^0 + 60^0 + 60^0 = 180^0$

$= 180^0 + 180^0 = 360^0$ Measure of circumference of circle

Formula: Measure of circle **x** Measure of circumference = Measure of circumference of circle

36^0 **x** 10^0 $= 360^0$ Measure of circumference of circle

14 : Method No.12:

As per Measure of circle and Measure of circumference of circle

Measure of circle:

$6^0 + 6^0 + 6^0 + 6^0 + 6^0 + 6^0 = 36^0$

Measure of circumference of circle :

$60^0 + 60^0 + 60^0 + 60^0 + 60^0 + 60^0 = 360^0$

Goba Radians $= \ominus^c = \frac{360^0}{2} = 180^0$

Goba $= \ominus = \frac{36^0}{2} = 18^0$

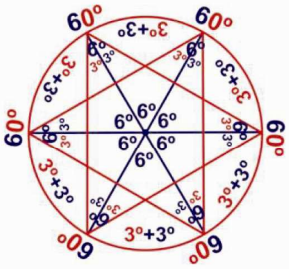


Diagram No. 23

Measure of centre of circle = 6 Arc radius has 1 Measure of centre of circle

15 : Method No.13:

<u>The triangle is in 180^0.</u>

Measure of circumference of circle = Around the centre point, arise the 6 parts of angle and one part is of 60^0 measure of angle.

$\therefore$ How many measure of 6 parts?

60^0 **x** 6 parts $= 360^0$

Circumference of circle is divided in to 6 equilateral triangles therefore one arc radius is in 6^0.

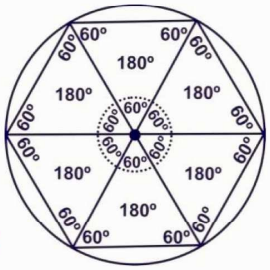
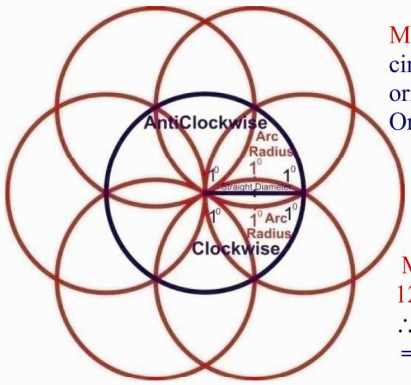


Diagram No.24

Circumference of a circle is divides in six (6) parts, which means the circumference of a circle contains six (6) equilateral triangles.

16 : ***Construction from original Measure of radius to measure of circumference of circle***



Measure of 24 arc radius outside the original circumference of circle is of 12 arc radius interior of original circumference of circle.

Original measure of radius = Measure of straight radius + Measure of arc radius

$= (1^0 + 1^0) + (1^0 + 1^0 + 1^0)$

$= 2^0 + 3^0 = 5^0$

For construction measure of radius = $5^0 \times 2^0 = 10^0$

Measure of 24 arc radius = $24 \times 3^0 = 72^0$ this is measure of 12 arc radius interior of original circumference of circle

$\therefore 24 \times 3^0 = 72^0$ Therefore measure of one arc radius

$= 12 : 1 :: 72^0$

Measure of arc radius $= \dfrac{1 \times 72^0}{12} = 6^0$ clockwise and anticlockwise direction.

Diagram No.25

Original circumference of circle is divided into 6 arc radius By virtue of construction of 6 circumference of circle. from this measure of circle.

$\therefore$ Measure of circle $= 1 : 6 :: 6^0 \quad = \dfrac{6 \times 6^0}{1} = 36^0$ *Measure of circle*

As per 6 arc radius has 1 centre of circle

$\therefore$ 12 arc radius has centre of circle $= 6 : 12 :: 1^0 = \dfrac{12 \times 1^0}{6} = 2^0$ *Measure of centre of circle*

Measure of 12 arc radius interior of original circumference of circle is of 6 arc radius of original circumference of circle.

$\therefore$ Measure of circle = 12 arc radius $\times 3^0 = 36^0$ from this Measure of arc radius

$\therefore$ Measure of circle $= 6 : 1 :: 36^0$ Measure of arc radius $= \dfrac{1 \times 36^0}{6} = 6^0$ clockwise and anticlockwise direction.

Circumference of circle as per one radius 5^0, 24 radius has measure?

This is measure of 12 arc radius interior.

$= 1 : 24 :: 5^0 \quad = \dfrac{24 \times 5^0}{1} = 120^0$ This is measure of 12 arc radius interior of original circumference of circle

Measure of radius $= 12 : 1 :: 120^0 \quad = \dfrac{1 \times 120^0}{12} = 10^0$ *Measure of radius*

Measure of circumference = Measure of centre of circle x Measure of radius

$1^0 \times 10^0 = 10^0$ Measure of circumference

Measure of circumference 10^0 this is original circumference of circle and 1^0 Measure of centre

1^0 centre of circle has 10^0 circumference therefore how many measure of centre of circumference of 6^0 centre of circle of construction on the original circumference of circle?

$1^0 : 6 :: 10^0$ Measure of circumference $\quad = \dfrac{6 \times 10^0}{1} = 60^0$ *Original circumference of circle*

Measure of circumference of circle = 1^0 has 60^0 Therefore how many degrees of 6^0 centre of circle of construction.

$1^0 : 6^0 :: 60^0 \quad = \dfrac{6^0 \times 60^0}{1^0} = 360^0$ *Original circumference of circle*

Measure of arc radius as per Measure of circumference of circle

$$= \frac{360^0}{6^0 \, Original \ arc \ radius} = 60^0 \ \text{of} \ circumference \ of \ circle$$

OR

Measure of Radius = Measure of straight radius + Measure of arc radius

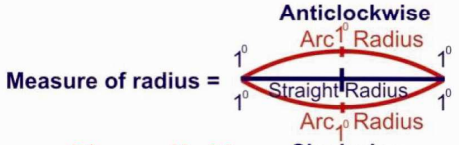


Diagram No.26

Measure of Straight radius = Clockwise + Anticlockwise
$= (1^0 + 1^0) + (1^0 + 1^0)$
$= 2^0 + 2^0 = 4^0$ Measure of Straight radius

Measure of Arc radius = Clockwise + Anticlockwise
$= (1^0 + 1^0 + 1^0) + (1^0 + 1^0 + 1^0)$
$= 3^0 + 3^0 = 6^0$ Measure of Arc radius

Measure of Radius = Measure of straight radius + Measure of arc radius
$= 4^0 + 6^0 = 10^0$ Measure of radius

Measure of circumference = Measure of centre of circle x Measure of radius
$= 1^0 \text{x} \ 10^0 = 10^0$ Measure of circumference

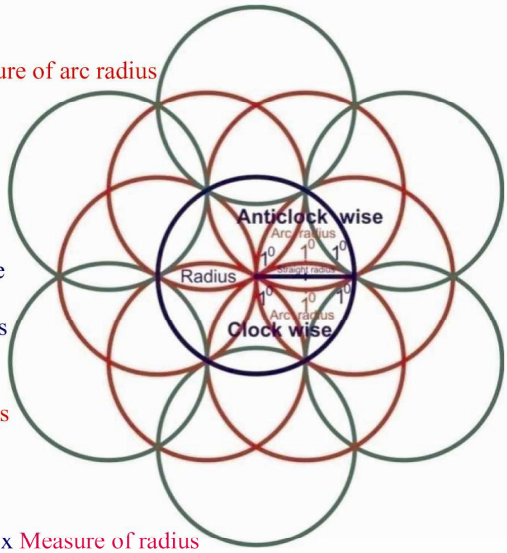


Diagram No.27

Measure of circle = 6 Arc radius + Measure of arc radius
$= 6^0 + 6^0 = 10^0$ Measure of circle

Measure of circumference of circle = Measure of circle x Measure of circumference
$= 36^0 \text{ x } 10^0 = 360^0$ Measure of circumference of circle

The base of Goba, i. e., $E = Mm^2$, i. e., Point, is 36^0 measure of circle.
I have tried to explain in scientific and mathematical language in the research paper on Goba, $E=Mm^2$, point, the 36^0 measure of circle and 360^0 measure of circumference of circle, by giving different examples.

17: *Measure of circle 36^0 and measure of circumference of circle 360^0 with the references given*

By different methods, the evolution and creation of straight radius - measures of straight radius, arc radius - measure of arc radius, radius - measure of radius, circle - measure of circle, measure of circumference, circumference of circle - measure of circumference of circle, Goba - Goba radian. The self - proving theorem of Goba and its explanation on the basis of a formula, (Goba Cha Swayamshidha Sidhanta Wa Sutracha Aadharacha Spastikaran, (In marathi)), Point - The theorem of existence of point and its aspect, (Bindu - Binducha Asthitwachi Shidhatha Wa Swarup, (In marathi)), and $E=Mm^2$ Which means Energy = Mass x (Speed of Mass)^2, Speed of Light = 22,32,00,00,000 Mile/per Second (Twenty two Hundred and Thirty two Cores Mile/per Second, ($E=Mm^2$ Mhanajhach Shakati = Wastuman x Wastumanacha Wegacha Varga, Prakashacha Wega = 22,32,00,00,000 Mail / Prati Second (Bavis Abja Batish Koti Mail / Prati Second), (In Marathi)), By giving various examples in this research paper, I have tried to explain these formulae in scientific and mathematical language.

Measure of circle 36^0 is base of the mathematics of this, The Formula of Arc Radius. 36^0 Measure of circle is "The self - proving theorem of Goba and its explanation on the basis of a formula, (Goba Cha Swayamshidha Sidhanta Wa Sutracha Aadharacha Spastikaran, (In marathi)), Point - The theorem of existence of point and its aspect, (Bindu - Binducha Asthitwachi Shidhatha Wa Swarup, (In marathi))", in this research paper via different methods and different construction in the given reference is shown, is proved. According to measure of circle, arc radius is in 6^0 and according to measure of circumference of circle, arc radius is in 60^0.

18 : Formula of Arc Radius

Straight Radius = r_s, Arc Radius = r_a, Straight Diameter = d_s, Arc Diameter = d_a, Length = ℓ

Straight Radius = 5 c.m.

Straight Diameter = 10 c.m.

Circumference of circle = $2\ominus r_s = d_s\ominus$

= 2 x 3.141592653 x 5 c.m. = 31.41592653 c.m.

= 10 c.m. x 3.141592653 = 31.41592653 c.m

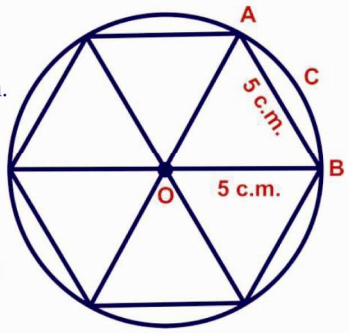


Diagram No.28

Formula of Arc Radius : $2\ominus r_s \div 6$ = 2 x Goba x Straight radius ÷ 6

OR

$d_s\ominus \div 6$ = Straight diameter x Goba ÷ 6

Arc radius = $2\ominus r_s \div 6$

$$= \frac{2 \times 3.141592653 \times 5\ c.m.}{6} = 5.235987755\ c.m.$$ Arc radius

OR

Arc radius = $d_s\ominus \div 6$

= 10 c.m. x 3.141592653 ÷ 6

= 31.41592653 c.m Circumference of circle ÷ 6 = 5.235987755 c.m. Arc radius

13 of 15

19 : Verification of, how the formula of Arc radius is correct:

$\ominus$ = Goba means Circumference of circle ÷ Straight diameter = Goba,

6.283185306 ÷ 2 = 3.141592653 Goba Constant

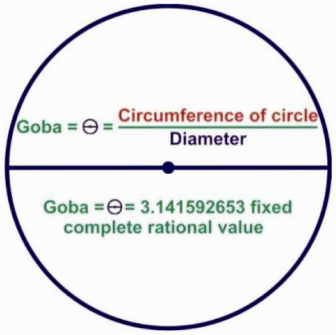


Diagram No.29

Ratio of arc radius to straight radius

$$\frac{Arc\ Radius}{Straight\ Radius} = \frac{1047197551^0}{1000000000^0} = \frac{1.047197551^0}{1^0} =$$

$= 1.047197551$ *Su. S. J. Constant means*

Sulabha Shantaram Janorkar

Ratio

Radius 1^0 : 1.047197551^0 Arc Radius

Circumference of circle = 6 Arc Radius = 6 x 1.047197551^0 = 6.283185306^0 Circumference of circle

Diameter = 2 Radius = 1^0 x 2 = 2^0 Radius

A) For example we consider straight radius = 5 c.m.

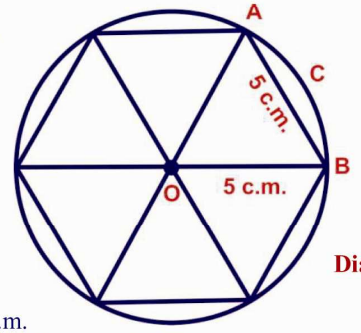


Diagram No.30

Circumference of circle = $2\ominus r_s$

= 2 x 3.141592653 x 5 c.m.

= 31.41592653 c.m. Circumference of circle ..... (1)

Straight Radius = 5 c.m.

Arc radius = Straight Radius 5 c.m. x 1.047197551 Su.S.J. Constant = 5.235987755 c.m. Arc radius

Arc radius ℓ (A C B) = 5.235987755 c.m.

OR

Arc radius = $2\ominus r_s \div 6$

$$= \frac{2 \times 3.141592653 \times 5\ c.\ m.}{6} = 5.235987755\ c.\ m.\ Arc\ Radius$$

OR

Arc radius = $d_s \ominus \div 6$

= 10 c.m. x 3.141592653 ÷ 6

= 31.41592653 c.m Circumference of circle ÷ 6 = 5.235987755 c.m. Arc radius

Circumference of circle = 6 Arc radius = 6 x Arc radius ℓ (A C B)

= 6 x 5.235987755 c.m.

= 31.41592653 c.m. Circumference of circle …… (2)

From, equation (1) & (2) they are equal, therefore the formula of Arc radius is correct.

B) For example we consider straight radius = 9 c.m.

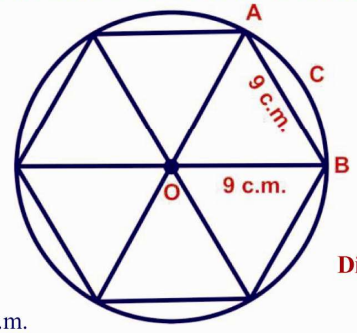


Diagram No.31

Circumference of circle = $2\ominus r_s$

= 2 x 3.141592653 x 9 c.m.

= 56.548667754 c.m. Circumference of circle …… (1)

Straight Radius = 9 c.m.

Arc radius = Straight Radius 9 c.m. x 1.047197551 Su.S.J. Constant = 9.424777959 c.m. Arc radius

Arc radius ℓ (A C B) = 9.424777959 c.m.

OR

Arc radius = $2\ominus r_s \div 6$

$$= \frac{2 \times 3.141592653 \times 9\ c.\ m.}{6} = 9.424777959\ c.\ m.\ Arc\ Radius$$

OR

Arc radius = $d_s \ominus \div 6$

= 18 c.m. x 3.141592653 ÷ 6

= 56.548667754 c.m Circumference of circle ÷ 6 = 9.424777959 c.m. Arc radius

Circumference of circle = 6 Arc radius = 6 x Arc radius ℓ (A C B)

= 6 x 9.424777959 c.m.

– 56.548667754 c.m. Circumference of circle …… (2)

From, equation (1) & (2) they are equal, therefore the formula of Arc radius is correct.

Reference:

[1] Mr.Shantaram Bapurao Janorkar,"Goba Cha Swayamshidha Sidhanta" Marathi Aawaruti (Edition) - 15 September 1998, Om Publication, Mahan-444405, Chief Publisher, Mr. Dhananjay Shantaram Janorkar.

[2] Mr.Shantaram Bapurao Janorkar, "Goba Cha Swayamshidha Sidhanta Wa Sutracha Aadharacha Spastikaran" Marathi Aawaruti (Edition) - 4 April 2004, Om Publication, Mahan-444405, Chief Publisher, Mr. Dhananjay Shantaram Janorkar.

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