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The Conversion of Degrees, Radians and the *Diametian* in Ancient Reckoning Counts

Earth/matriX
SCIENCE IN ANCIENT ARTWORK
New Orleans, Louisiana
September, 2001

ISBN 58616-218-7

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ISBN 58616-218-7

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P.O. Box 231126
New Orleans, Louisiana
September, 2001
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With Profound Sadness
To the Big Apple
With Great Optimism

The Conversion of Degrees, Radians and the *Diametian* in Ancient Reckoning Counts

Presentation

In this essay, we shall present analyses of the ancient reckoning counts in relation to the procedures employed for converting degrees to radians and radians to degrees. The reader may be as surprised as this author to find a direct correlation between ancient reckoning counts and the conversion factors of degrees and radians.

We shall illustrate how the use of the *diametian (two radians)* improves the conceptual nature of the geometrical problematique in relation to the analyses of Unit Circles.

Part: General Background and Commentary

The conversion of degrees and radians:

$$180 \;/\; \pi \;=\; 57.29577951° \text{ (one } \textit{radian}\text{)}$$

$$180 \;/\; \textit{radian} \;=\; 3.141592654 \text{ (pi)}$$

The interesting point for the ancient reckoning system is that these two expressions are mediated by the number 180, which pertains to half the number of degrees in a circle as we know it today (360°). Many ancient reckoning counts are based upon the 9, 18, 36… count, and therefore relate easily to these particular formulae, as we shall observe in this essay.

The Conversion of Degrees and Radians

The conversion of degrees and radians is generally suggested by way of two formulae, and inversely thereof:

$$1° = \pi \text{ rad} / 180$$

$$1 \text{ rad} = (180/\pi)°$$

To convert from degrees to radians, *multiply by*

$$\pi \text{ rad} / 180$$

To convert from radians to degrees, *multiply by*

$$180° / \pi \text{ radians}$$

The Conversion of Degrees and Radians

To convert from degrees to radians,

Degrees ÷ Radian = Radian (%)

(3° / 57.29577951 = .0523598776)

To convert from radians to degrees

(#) Radians × Radian = Degrees

(3 x 57.29577951 = 171.8873385°)

Defining The Diametian

360 / *3.141592654* = 114.591559 *(diametian)*

A Unit Circle in our mind would have a diameter of 114.591559 when the circumference is divided into 360 degrees!

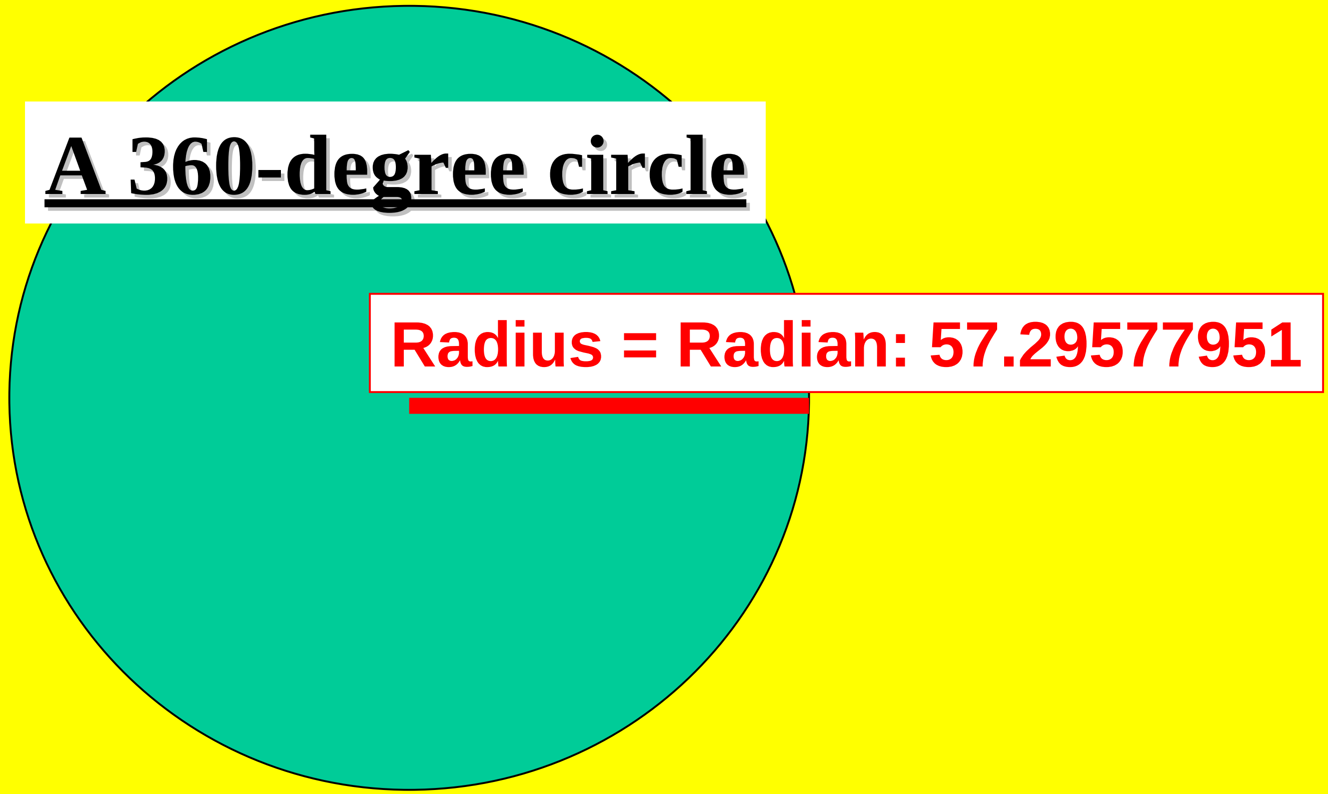
$$\mathbf{3.141592654 \times 114.591559011 = 360}$$

(*pi* times *diametian* = 360)

In a Unit Circle of this nature, the Radius would be equal to one radian.

The Diametian

360 / *3.141592654* = 114.591559 *(diameter)*



**In a Unit Circle of this nature,
the Radius would be equal to one radian.**

To convert from **Degrees to Diametians (Two Radians)**

Degrees ÷ Diametian = Diametian (%)

(3° / 114.591559 = .0261799388)

To convert from **Diametians to Degrees**

(#) Diametians × Diametian = Degrees

(3 x 114.591559 = 343.7746677°)

2πRadius = circumference

2 (π) .5 = 3.141592654

The circumference of a circle whose diameter is 1.0

2 (π) 1.0 = 6.283185307 (2pi)

The circumference of a Unit Circle in Geometry whose diameter of 2.0

The *Length of the Arc* (denoted by *s*) Intercepted by a Central Angle of Any Size in a Circle of Any Radius

Computations in Degrees:

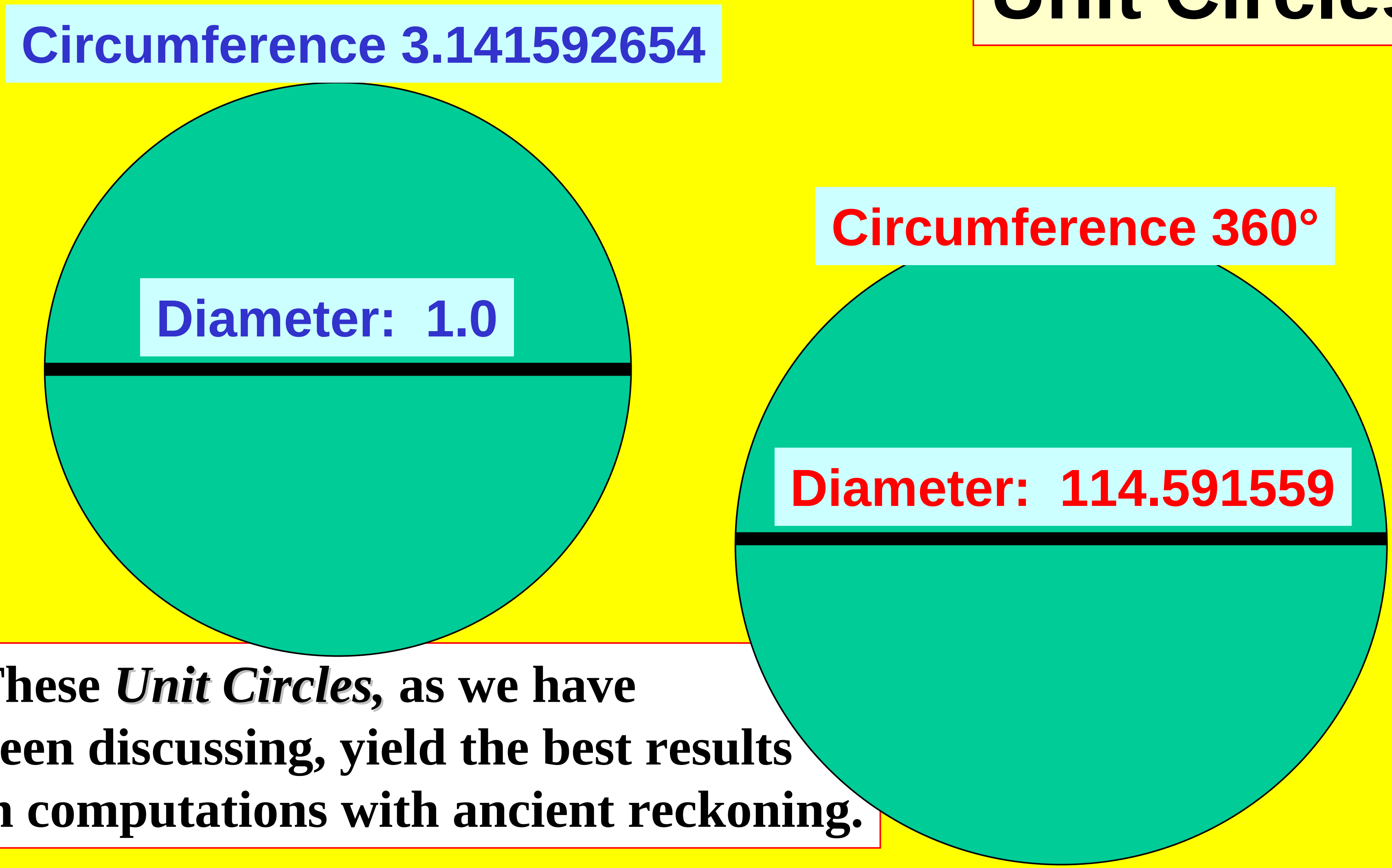
s = angle/360 $\times$ Circumference

s = angle/360 $\times$ 2πRadius

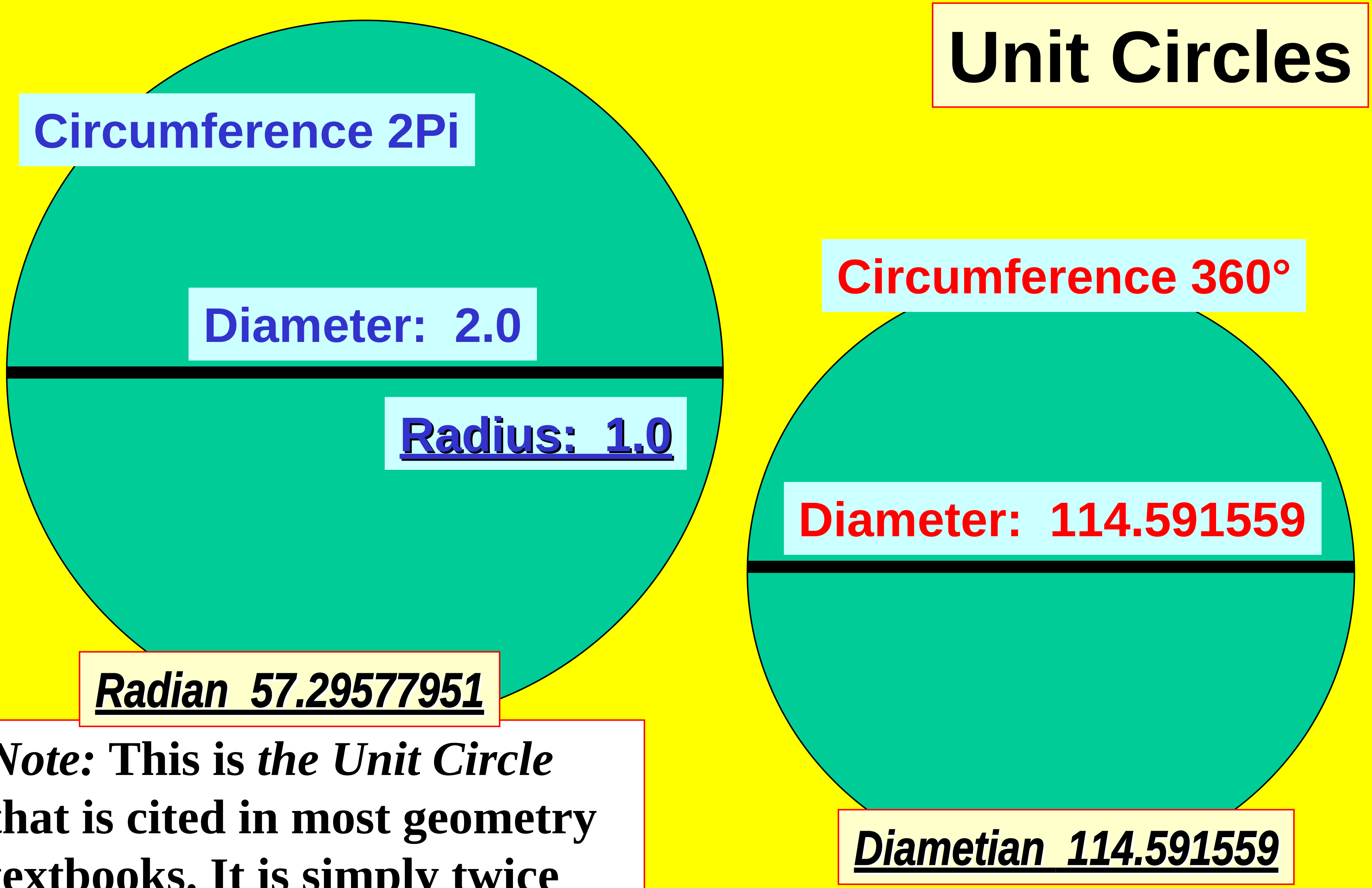
Computations in Radians:

s = aR (*simply, the angle multiplied by the radius*)

Unit Circles



These ***Unit Circles***, as we have been discussing, yield the best results in computations with ancient reckoning.



Note: **This is *the Unit Circle* that is cited in most geometry textbooks. It is simply twice the Unit Circle of diameter 1.0.**

The Radian and the Diametian

Radians

Some commonly cited angles in ***radians:*** **57.29577951**

360°	=	2pi	radians
270°	=	3pi/2	radians
180°	=	pi	radians
90°	=	pi/2	radians
75°	=	5pi/12	radians
60°	=	pi/3	radians
45°	=	pi/4	radians
30°	=	pi/6	radians
15°	=	pi/12	radians
1°	=	pi/180	radians

Diametians

Some commonly cited angles in ***diametians*****:** **114.591559**

360°	=	pi	×	diametian
270°	=	3/4pi	×	diametian
180°	=	1/2pi	×	diametian
90°	=	1/4pi	×	diametian
75°	=	5/24pi	×	diametian
60°	=	pi/6	×	diametian
45°	=	pi/8	×	diametian
30°	=	pi/12	×	diametian
15°	=	pi/24	×	diametian
1°	=	pi/360	×	diametian

The Diametian

Commonly cited angles in *diametians*: 114.591559

360°	=	1pi	×	114.591559
270°	=	3/4pi	×	114.591559
180°	=	1/2pi	×	114.591559
90°	=	1/4pi	×	114.591559
75°	=	1/4.8pi	×	114.591559
60°	=	1/6pi	×	114.591559
45°	=	1/8pi	×	114.591559
30°	=	1/12pi	×	114.591559
15°	=	1/24pi	×	114.591559
1°	=	1/360pi	×	114.591559

The Unit Circle is based upon a diameter of *114.591559*, whereby the *circumference* is exactly 360. By employing the *diametian (114.591559)* instead of the radian measure, one is simply emphasizing the concept of the "diameter" over that of "two radians". The object is to draw attention in the computations to the length of the diameter. *The formulae are thus relational to the number of degrees cited.*

Angles commonly cited in Geometry Textbooks in *Radians*.

Unit Circle for Formulae is Actually an Half Circle (180°)

360°	**=**	**2**	×	**3.141592654**	×	**57.29577951**
270°	**=**	**3/2**	×	**3.141592654**	×	**57.29577951**
180°	**=**	**1.0**	×	**3.141592654**	×	**57.29577951**
90°	**=**	**1/2**	×	**3.141592654**	×	**57.29577951**
75°	**=**	**5/12**	×	**3.141592654**	×	**57.29577951**
60°	**=**	**1/3**	×	**3.141592654**	×	**57.29577951**
45°	**=**	**1/4**	×	**3.141592654**	×	**57.29577951**
30°	**=**	**1/6**	×	**3.141592654**	×	**57.29577951**
15°	**=**	**1/12**	×	**3.141592654**	×	**57.29577951**
1°	**=**	**1/180**	×	**3.141592654**	×	**57.29577951**

Note the complexity in recognizing the number of degrees and the corresponding fractional expression angle/180 by using the *radian* instead of the *diametian* (next slide).

Unit Circle 1.0 as 360° :: *Diametian*: 114.591559

360°	=	1.0	×	3.141592654	×	114.591559
270°	=	3/4	×	3.141592654	×	114.591559
180°	=	1/2	×	3.141592654	×	114.591559
90°	=	1/4	×	3.141592654	×	114.591559
75°	=	1/4.8	×	3.141592654	×	114.591559
60°	=	1/6	×	3.141592654	×	114.591559
45°	=	1/8	×	3.141592654	×	114.591559
30°	=	1/12	×	3.141592654	×	114.591559
15°	=	1/24	×	3.141592654	×	114.591559
1°	=	1/360	×	3.141592654	×	114.591559

Note how the ease of recognizing the number of degrees and the corresponding fractional expression angle/360 by using the *diametian* instead of the *radian*.

Conversion Examples

Conversion examples using the 756c Kemi count:

Degrees/radians: **$1° = \pi$ rad / 180**

$756° / 180 = 4.2 \times$ pi = 13.19468915 radians

Radians/degrees: **1 rad = $(180/\pi)°$**

756 rad $\times$ 180 = 136080 / pi = 43315.60931 degrees

Consider adjustment:

756 rad x 180 = 136080 / 3.15 = 43200 Consecration

Conversion examples of the 1366560c Maya count:

Degrees/radians: **$1° = \pi$ rad / 180**

1366560° / 180 = 7592

7592 × pi = <u>23850.97143 radians</u>

Radians/degrees: **1 rad = $(180/\pi)°$**

1366560 rad × 180 = 245980800

245980800 / pi = 78298120.45 degrees

Conversion examples of the 1366560c Maya count and the 1959552c Nineveh Count:

Degrees/radians: **1° = π rad / 180**

1366560° / 180 = 7592

7592 × pi = 23850.97143 radians

23850 doubles to

195379200 - 195955200 = 576000 (MLC fractal)

7592 × 2 = 15184 (maya counts)

Conversion examples (*Sothic 1649.457812*):

Degrees/radians: **1° = π rad / 180**

1649.457812° / 180 = 9.163654511

9.163654511 × pi = 28.78846969 radians

Consider adjustment:

9.163654511 / 28.8 = .3181824483

1 / .3181824483 = ca. reciprocal of pi, 3.142850919
as reciprocal of seven, 3.142857

The reciprocal of pi, instead of pi, may be employed to compute whole numbers.

Conversion examples (13c):

Degrees/radians: **1° = π rad / 180**

13° / 180 = .0722222222

.0722222222 × pi = .2268928028 radians

.0722222222 / .2268 = .3184401332

In this case the ancient 13c would represent degrees and the ancient 2268c of Nineveh would represent the radians.

13 degrees equals ca. .2268 radians

Conversion examples (25956c Maya Precession):

Degrees/radians: **1° = π rad / 180**

25956° / 180 = 144.2 × pi = 453.0176606 radians

144.2 / 453.6 = .3179012346

In this case the ancient maya144c would represent degrees and the ancient 4536c of Nineveh would represent the radians.

144 degrees equals ca. 453.6 radians

The Conversion of Degrees and Radians

180

3.141592654
Pi (π)

57.29577951
Radian

The relationship of the three numbers shown above relates to the conversion of degrees and radians of a circle. Yet, we may wonder how would they relate to the different ancient reckoning counts. Take two ancient Kemi counts: 756 and 42. Let us remember that 756c is often given as the side measurement of the Great Pyramid of Giza.

756 / 180 = 42

The Conversion of Degrees and Radians

756 / 180 = 42

756 / *3.141592654* = 240.642274 / *57.29577951* = 4.2

From the previous computation one may observe how the two Kemi counts are related as Pi and the Radian. Also, one may realize why the ancients may have disliked fractions, such as, 240.642274 which suggests the 6, 12, 24c… ancient reckoning constant count.

756 / *3.15* = 240.0 / *57.14285714* = 4.2

Fractionless **reckoning counts may be obtained easily within the computation by changing pi to the ancient 3.15 number and employing the reciprocal of seven number for the radian.**

The Conversion of Degrees and Radians

$$756 \;/\; 3.15 = 240.0 \;/\; 57.14285714 = 4.2$$

In this manner, one is able to obtain a relationship among three distinct ancient reckoning counts by way of two geometrical constants: pi and the radian. It is difficult to imagine that the ancients chose three distinct reckoning counts simply out of happenstance, when we observe their direct relationship to the geometrical constants. In other words, it is easy to understand that 756c and 42c are related to the 180 count, but then, to observe their relationship to yet another third count, by way of the two geometrical constants defies logic.

If the reciprocal of seven appears bothersome, we simple invert it to its own reciprocal (175, 350, 700...):

$$756 \;/\; 3.15 = 240.0 \times \underline{.0175} = 4.2$$

The Conversion of Degrees, Radians and the Diametian

360 / *3.141592654* = 114.591559 *(diametian)*

A Unit Circle in our mind would have a diameter of 114.591559 when the circumference is divided into 360 degrees!

$$3.141592654 \times 114.591559011 = 360$$

(*pi* times *diametian* = 360)

In a Unit Circle of this nature, the Radius would be equal to one radian.

The Conversion of Degrees and Radians

180 / 3.141592654 = 57.29577951 / 57.29577951 = 1.0
degrees radius radian

360 / 3.141592654 = 114.591559 / 57.29577951 = 2.0
degrees diameter radians

Now, let us suppose that the ancients divided a circle into as many degrees or divisions (segments) as they required for their computations. Let us suppose that they divided a circle into 756c degrees, instead of the 360-degree circle that we have inherited today.

756 / 3.141592654 = 240.642274 / 57.29577951 = 4.2
degrees (4.2 radians) radians

240.642274 × 114.591559 = 27575.57334 / radian = 481.2845479

4.2 radians × 2 radians = 8.4 radians

The Conversion of Degrees and Radians

756 / *3.141592654* = 240.642274 / *57.29577951* = 4.2
degrees (4.2 radians) radians

1512 / 3.141592654 = 481.2845479 / 57.29577951 = 8.4
degrees 8.4 radians radians

Note the pi-like relationship to the projected height of the Great Pyramid of Giza (481.5 feet), which would represent theoretically at least, 8.4 radians.

Selected Historically Significant Reckoning Counts in Relation to the Conversion of Degrees and Radians

The historically significant counts that we have selected on the following slides are related ultimately as of the 18 count (36c). One merely has to divide one of the extreme terms of the following equations by its corresponding extreme term, in order to visualize this particular relationship. Yet, the significant point is the manner in which the counts relate to the pi and the radian expressions and the third or middle count posted within each equation. The middle term of the equation may be read as *x* radians or, as the length of the diameter for the circumference of each corresponding circle.

1872000	/	*3.141592654*	=	**595876.1069**	/	*57.29577951* = **10400**
degrees				***5200 diametians***		***radians***

1872000	/	*3.141592654*	=	**595876.1069**	/	*57.29577951* = **10400**
circumference				***diameter***		***radians***

The Conversion of Degrees and Radians

The Maya Long-Count Period (1872000) and the Mesoamerican Century (104c)

1872000 / *3.141592654* = 595876.1069 / *57.29577951* = 10400 radians

1872000 / 57.29577951 = 32672.5636 radians

The Sacred Seven Count (7c) and the Mesoamerican Count (3888c)

7 / *3.141592654* = 2.228169203 / *57.29577951* = .0388888889 radians

7 / 57.29577951 = .1221730476 radians

The Consecration Count (432c) and the Constant Count (24c)

432 / *3.141592654* = 137.5098708 / *57.29577951* = 2.4 radians

432 / 57.29577951 = 7.53822369 radians

The Conversion of Degrees and Radians

The Precessional Great Cycle (25920c) and the Maya Long-Count Fractal (144c)

25920 / 3.141592654 = 8250.59225 / 57.29577951 = 144 radians

25920 / 57.29577951 = 452.3893421 radians

The Maya Precession Count (25956c) and the Adjusted Maya Long-Count (72.1c, 144.2c)

25956 / 3.141592654 = 8262.051406 / 57.29577951 = 144.2 radians

25956 / 57.29577951 = 453.0176607 radians

The Maya Long-Count (144c) and the Constant Number Count (1, 2, 4, 8c)

144000 / 3.141592654 = 45836.62361 / 57.29577951 = 800 radians

144000 / 57.29577951 = 2513.274123 radians

The Conversion of Degrees and Radians

Half the Maya Long-Count Period (936000c) and the Mesoamerican Calendar Round (52c)

936000 / 3.141592654 = 297938.0535 / 57.29577951 = 5200 radians

936000 / 57.29577951 = 16336.2818 radians

The Nineveh Count (2268c) and the Constant Number Series (63c, 126c)

2268 / 3.141592654 = 721.9268219 / 57.29577951 = 12.6 radians

2268 / 57.29577951 = 39.58406744 radians

The Mesoamerican Count (2187c) and the Cuicuilco Count (1215c)

2187 / 3.141592654 = 696.1437211 / 57.29577951 = 12.15 radians

2187 / 57.29577951 = 38.17035074 radians

The Conversion of Degrees and Radians

The Adjusted Year Count (365c) and the Mesoamerican Legend of the Fifth Sun Count (2028c)

36504 / 3.141592654 = 11619.58409 / 57.29577951 = 2028 radians

36504 / 57.29577951 = 637.1149902 radians

The Maya Companion Number (1366560c) and the Calendar Round in Days (1898, 3796, 7592c)

1366560 / 3.141592654 = 434989.5581 / 57.29577951 = 7592 radians

1366560 / 57.29577951 = 23850.97143 radians

The Mesoamerican Count (7776c) and the Consecration Count (432c)

7776 / 3.141592654 = 2475.177675 / 57.29577951 = 43.2 radians

7776 / 57.29577951 = 135.7168026 radians

The Conversion of Degrees and Radians

The Venus Day-Count (585c) and the Mesoamerican Thirteen Count (3.25, 6.5, 13c)

585 / *3.141592654* = 186.2112834 / *57.29577951* = 3.25 radians

585 / 57.29577951 = 10.21017612 radians

The Nineveh Number (1959552c) and the Mesoamerican Count (108864c)

19595520 / *3.141592654* = 6237447.741 / *57.29577951* = 108864 radians

19595520 / 57.29577951 = 342006.3427 radians

The Maya Historical Count (1404000c) and the Mesoamerican Count (39, 78c)

1404000 / *3.141592654* = 446907.0802 / *57.29577951* = 7800 radians

1404000 / 57.29577951 = 24504.4227 radians

The Conversion Factor: .017453

To convert degrees to radians multiply by **.017453**

5198.00893 / pi = 1654.577631

5198.00893 / rad = 90.72237038

1654.577631 + 90.72237038 = 1745.300001

5198.00893 / 2 = 2599.004465 ***precession***

1654.577631 / 90.72237038 = 18.23781306

36.47562611

A Novelty: The Conversion Factor

5198.009 / rad = 90.7223716 (9072, 4536, 2268)

5198.009 / pi = 1654.577653

90.7223716 + 1654.577653 = 1745.300025

[To convert degrees to radians multiply by .017453]

360 × .017453 = 2pi (6.28308)

2pi / 360 = .0174532925 exact

pi / 180 = same

Sothic 1649.457812 - 1654.577653 = 5.119841

doubles to 81.917456 [kawil 819c + 1745c]

Commentary

As one may discern from the previous analysis, there appears to exist a direct relationship between the ancient reckoning counts and the basic procedures in geometry. It seems difficult to imagine the possibility that the ancients chose their ancient reckoning counts outside of the posits of geometry. Ancient artwork reflects an infinite number of geometrical designs. It is not at all surprising to find a link between the ancient historically significant numbers, and the procedures within geometry. Coincidence no longer is involved, once one is able to predict and extrapolate computations in the manner that the ancient reckoning numbers achieve in relation to the posits of classical geometry.

END FILE

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ISBN 58616-218-7