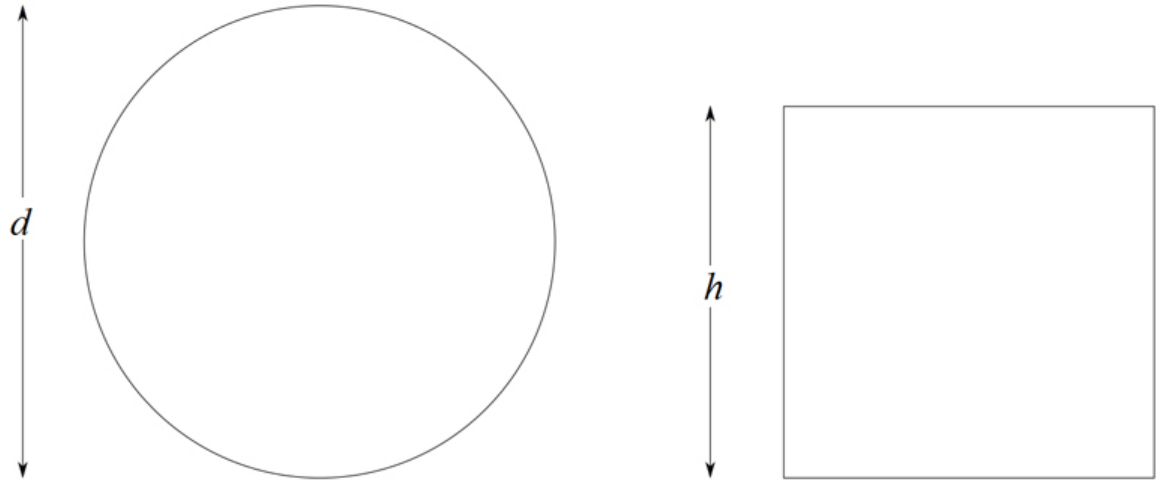
Pi versus Pi - a comparison

Back to proof.

Pi versus Pi - 3.141 v 3.144

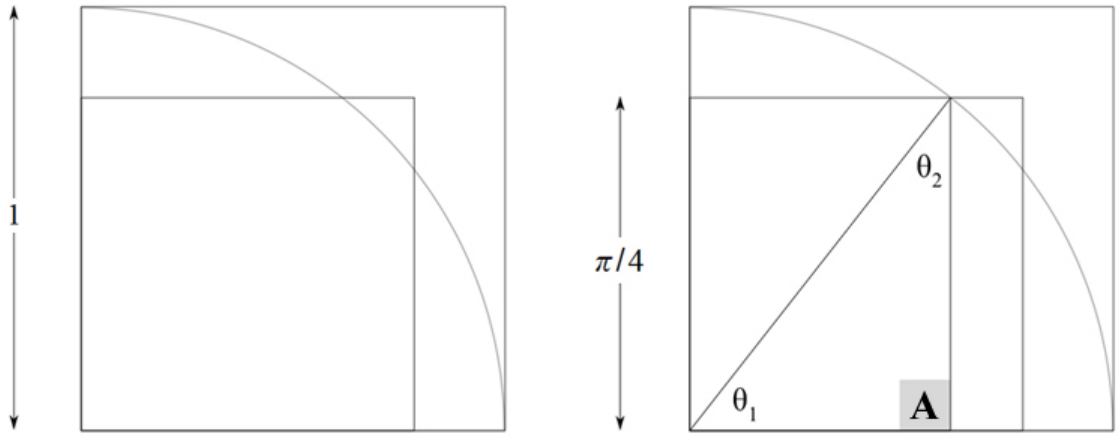
This book contains a comparison of two values of Pi, and shows that one of the values has perfect symmetry and one does not. Because both the square and the circle are both perfectly symmetrical, we would expect Pi to have perfect symmetry.

We start with a circle and a square with the same circumference/perimeter (c). (Fig. 1)



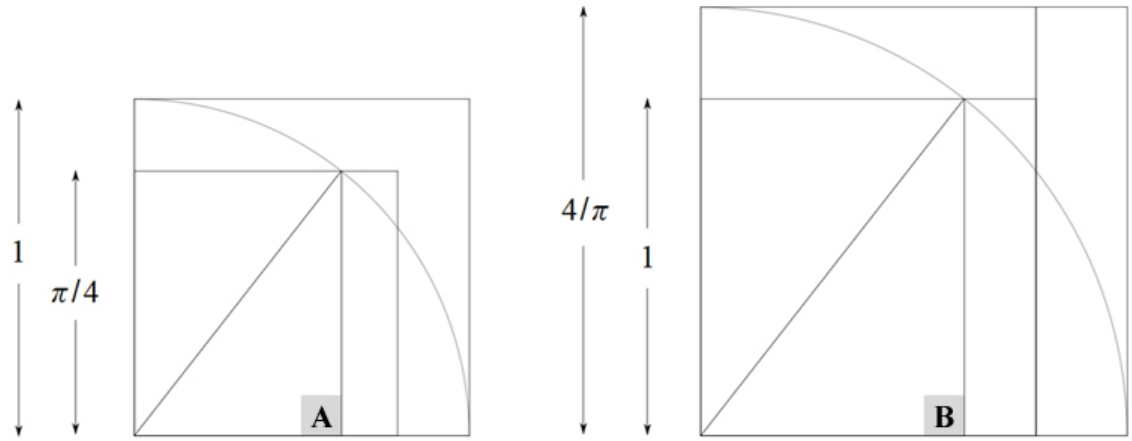
(Figure. 1)

We place the circle on top of the square and zoom into the top right quarter; put a unit square around it and create our first triangle A. (Fig. 2)



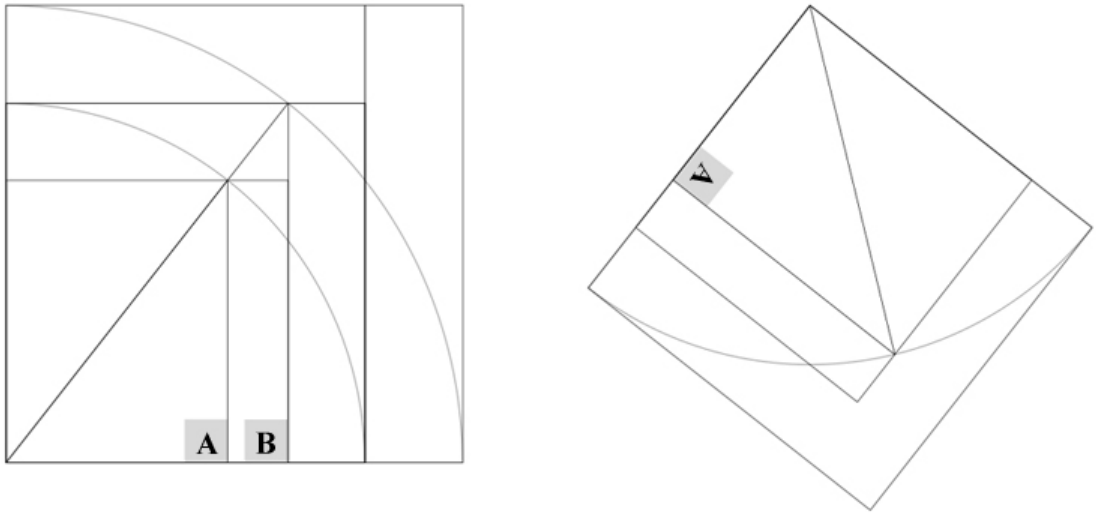
(Figure. 2)

We create a copy of our quarter squared circle and multiply it by a factor of 4/Pi, this gives us triangle B. (Fig. 3)



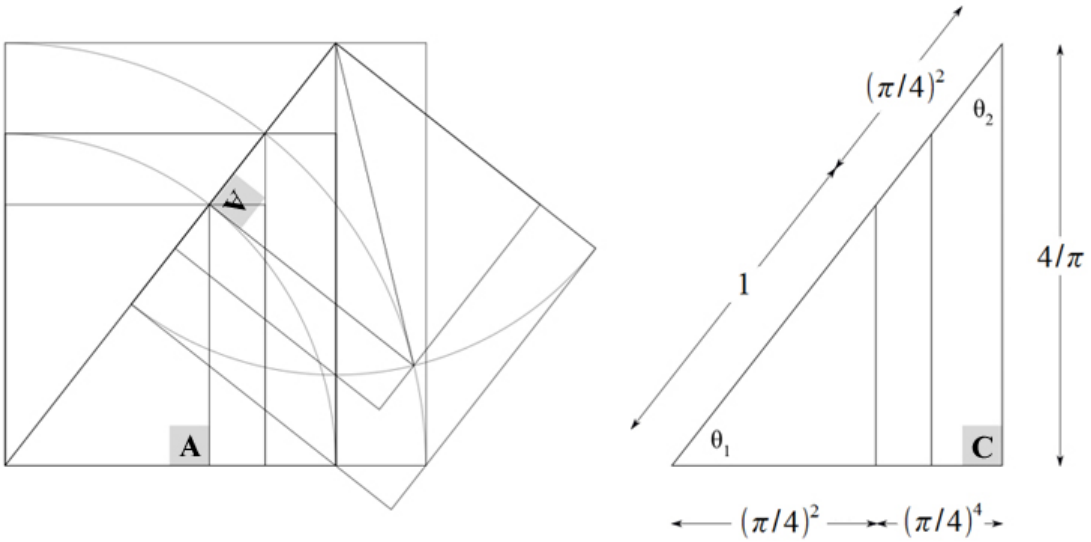
(Figure. 3)

We combine our two squared circles and add another squared circle rotated at an angle. (Fig. 4)



(Figure. 4)

Next we combine our squared circles and create our next triangle C. (Fig. 5)

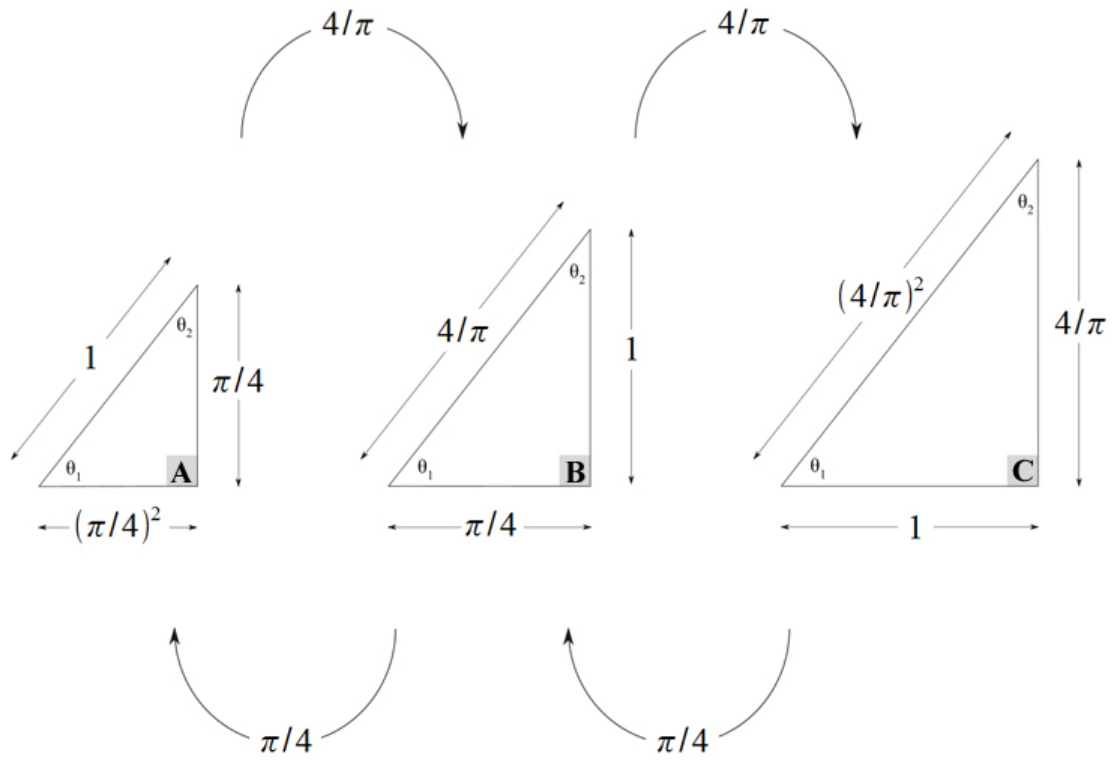


(Figure. 5)

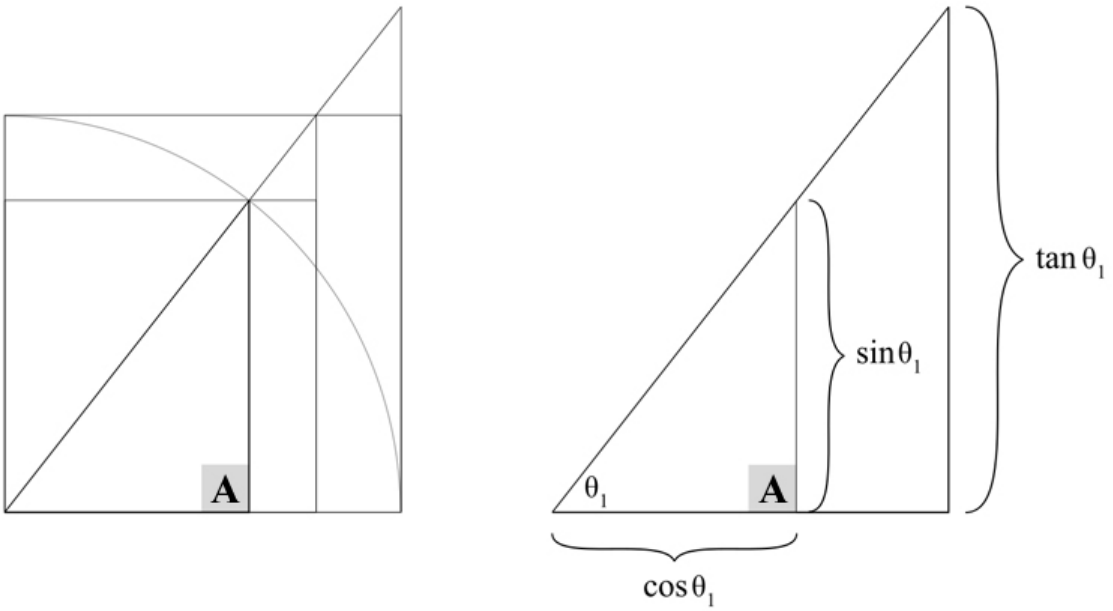
The values for triangle C (Fig. 5) are from the normalised triangles. (Fig. 6)

Because a triangle has three sides it can be normalised in three ways, with exceptions. A normalised triangle is simply a triangle with the one or more side-lengths equal to one.

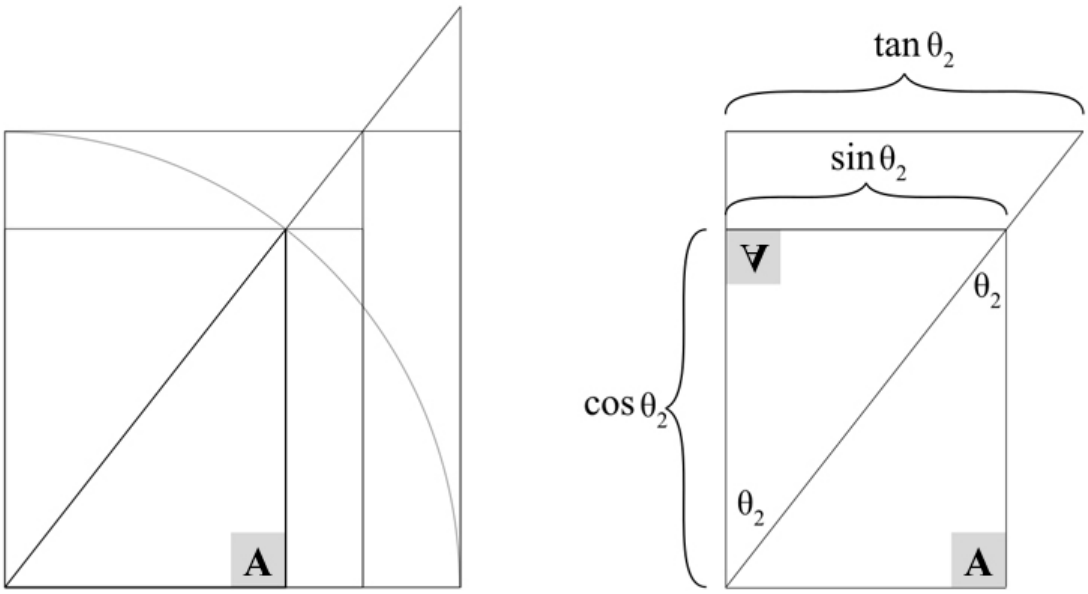
We can normalise triangle A and amazingly we can extrapolate every value using a simple conversion factor of 4/Pi and its reciprocal. (Fig. 6)



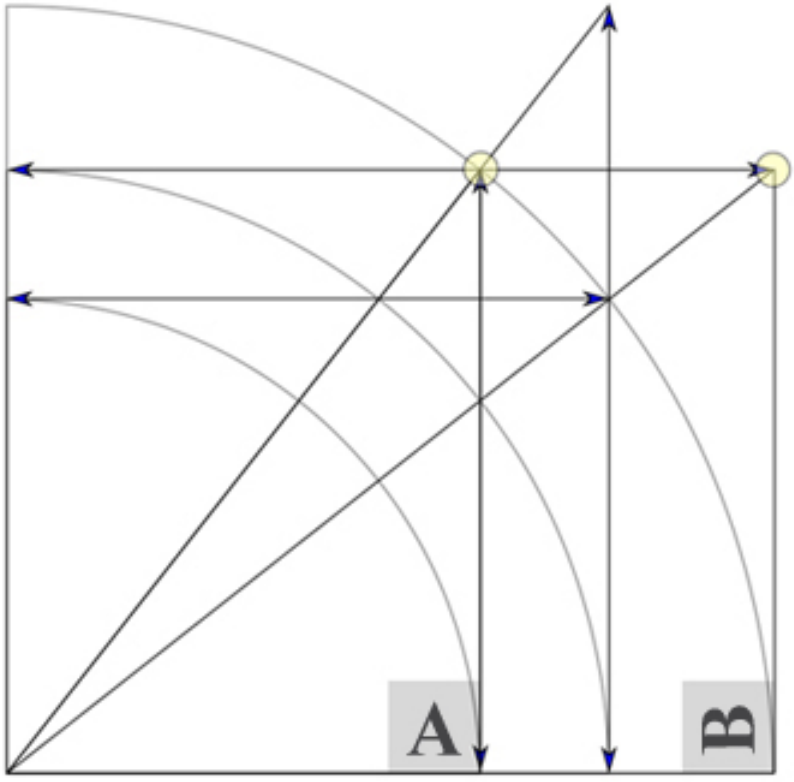
(Figure. 6)



(Figure. 7)

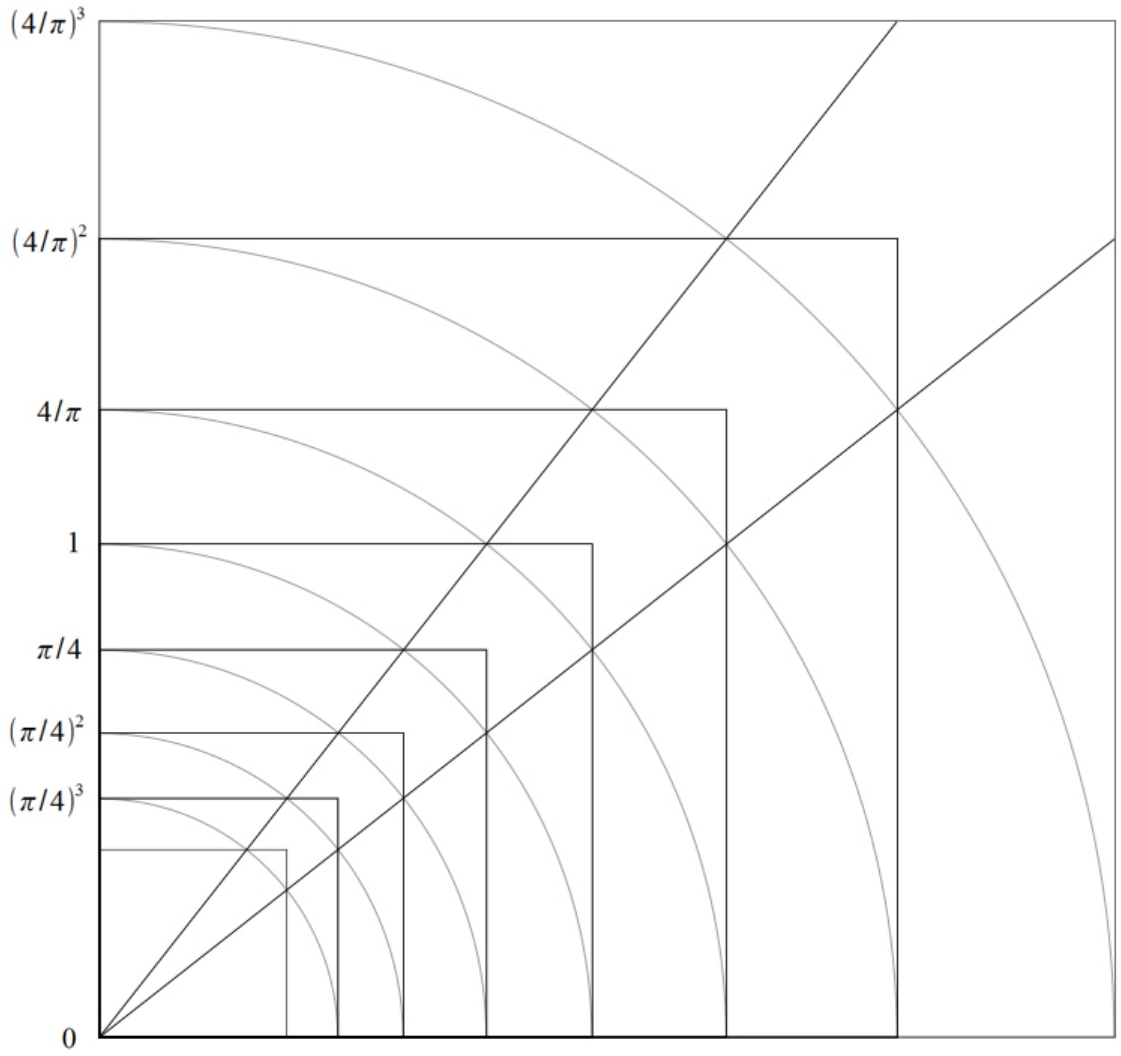


(Figure. 8)



(Figure. 11)

Each of the following squares and circles are a factor of 4/Pi larger or Pi/4 smaller. (Fig. 10)



(Figure. 10)

The Comparison (Pi v Pi)

In this section we will compare two different values for Pi. On the left is the value that we all know and on the right is the new value.

Π	3.14159265358979323846264..	3.14460551102969314427823..
$\Pi/4$	0.78539816339744830961566..	0.78615137775742328606955..
$4/\Pi$	1.27323954473516268615107..	1.27201964951406896425242..
$(\Pi/4)^2$	0.61685027506808491367715..	0.61803398874989484820458..
$(4/\Pi)^2$	1.62113893827740434310207..	1.61803398874989484820458..
$(\Pi/4)^4$	0.38050426185157202045484..	0.38196601125010515179541..
$(4/\Pi)^4$	2.62809145719918980842311..	2.61803398874989484820458..
Θ_1	51.7575185160219681938037..	51.8272923729877525065316..
Θ_2	38.2424814839780318061962..	38.172707627012247493468 3..
$\sin \Theta_1$	0.78539816339744830961566..	0.78615137775742328606955..
$\cos \Theta_1$	0.61899089244666200203422..	0.61803398874989484820458..
$\tan \Theta_1$	1.26883638027860886803898..	1.27201964951406896425242..
$\sin \Theta_2$	0.61899089244666200203422..	0.61803398874989484820458..
$\cos \Theta_2$	0.78539816339744830961566..	0.78615137775742328606955..
$\tan \Theta_2$	0.78812368209399997898631..	0.78615137775742328606955..
arcsin $\Pi/4$	51.7575185160219681938037..	51.8272923729877525065316..
arccos $\Pi/4$	38.2424814839780318061962..	38.172707627012247493468 3..
arctan $\Pi/4$	38.146025987222547545475 5..	38.172707627012247493468 3..

The symmetry (Pi)

In this section we will look at the symmetry of Pi. On the left is the value for Pi that we all know and on the right is the new value.

Is $(4/Pi)^2$ equal to 1 plus Cos Theta1? (Fig. 5)

$(4/\Pi)^2$	1.62113893827740434310207..	1.61803398874989484820458 6..
cos Θ_1	0.61899089244666200203422..	0.61803398874989484820458 6..
	NO	YES

Is $(4/Pi)^2$ equal to $(Pi/4)^2$ plus 1? (Fig. 5)

$(4/\Pi)^2$	1.62113893827740434310207..	1.61803398874989484820458 6..
$(\Pi/4)^2$	0.61685027506808491367715..	0.61803398874989484820458 6..
	NO	YES

Is $(Pi/4)^2$ plus $(Pi/4)^4$ equal 1? (Fig. 5)

$(\Pi/4)^2$	0.61685027506808491367715..	0.61803398874989484820458 6..
$(\Pi/4)^4$	0.38050426185157202045484..	0.38196601125010515179541 2..
	NO	YES

Is Pi/4 equal to Sin Theta1? (Fig. 7)

$\Pi/4$	0.78539816339744830961566..	0.78615137775742328606955 8..
sin Θ_1	0.78539816339744830961566..	0.78615137775742328606955 8..
	YES	YES

Is $(Pi/4)^2$ equal to Cos Theta1? (Fig. 7)

$(\Pi/4)^2$	0.6168502750680849136771 5..	0.6180339887498948482045 86..
cos Θ_1	0.6189908924466620020342 2..	0.6180339887498948482045 86..
	NO	YES

Is 4/Pi equal to Tan Theta1? (Fig. 7)

$4/\Pi$	1.2732395447351626861510 7..	1.2720196495140689642524 22..
tan Θ_1	1.2688363802786088680389 8..	1.2720196495140689642524 22..
	NO	YES

Is $(Pi/4)^2$ equal to Sin Theta2? (Fig. 8)

$(\Pi/4)^2$	0.6168502750680849136771 5..	0.6180339887498948482045 86..
sin Θ_2	0.6189908924466620020342 2..	0.6180339887498948482045 86..
	NO	YES

Is Pi/4 equal to Cos Theta2? (Fig. 8)

$\Pi/4$	0.7853981633974483096156 6..	0.7861513777574232860695 58..
cos Θ_2	0.7853981633974483096156 6..	0.7861513777574232860695 58..
	YES	YES

Is Pi/4 equal to Tan Theta2? (Fig. 8)

Π/4	0.7853981633974483096156..	0.7861513777574232860695 58..
tan Θ_2	0.7881236820939999789863 1..	0.7861513777574232860695 58..
	NO	YES

Is Cos Theta1 is equal to Tan Theta1?

cos Θ_1	0.7853981633974483096156..	0.7861513777574232860695 58..
tan Θ_1	0.7881236820939999789863 1..	0.7861513777574232860695 58..
	NO	YES

Is Theta1 equal to Arcsin Pi/4?

Θ_1	51.75751851602196819380 37..	51.82729237298775250653 169..
arcsin Π/4	51.75751851602196819380 37..	51.82729237298775250653 169..
	YES	YES

Is Theta2 equal to Arccos Pi/4?

Θ_2	38.242481483978031806196 2..	38.172707627012247493468 30..
arccos Π/4	38.242481483978031806196 2..	38.172707627012247493468 30..
	YES	YES

Is Theta2 equal to Arctan Pi/4?

Θ_2	38.2424814839780318061962..	38.17270762701224749346830..
arctan Π/4	38.1460259872225475454755..	38.17270762701224749346830..
	NO	YES

Is Arccos Pi/4 is equal to Arctan Pi/4?

arccos Π/4	38.2424814839780318061962..	38.17270762701224749346830..
arctan Π/4	38.1460259872225475454755..	38.17270762701224749346830..
	NO	YES

Is point a directly above point b? (Fig. 9)

	NO	YES

Is point c directly adjacent to point d? (Fig. 9)

	NO	YES

As you can see when we compare the two different values for Pi you can see that one value has perfect symmetry, and one does not.

The Number (PI)

Pi as a Decimal Number

Pi=3.14460551102969314427823434337183571809248823135089295065960788040472819048924365484765155663403254225951604897657844522350184148188477210145800112384535316599699631239446143308956024472240138513731315019765132501688867186247037873133594349618276234248844199296961553849723700557383552234689074536416980142043696409438174632694537726633954143989037097479242491573

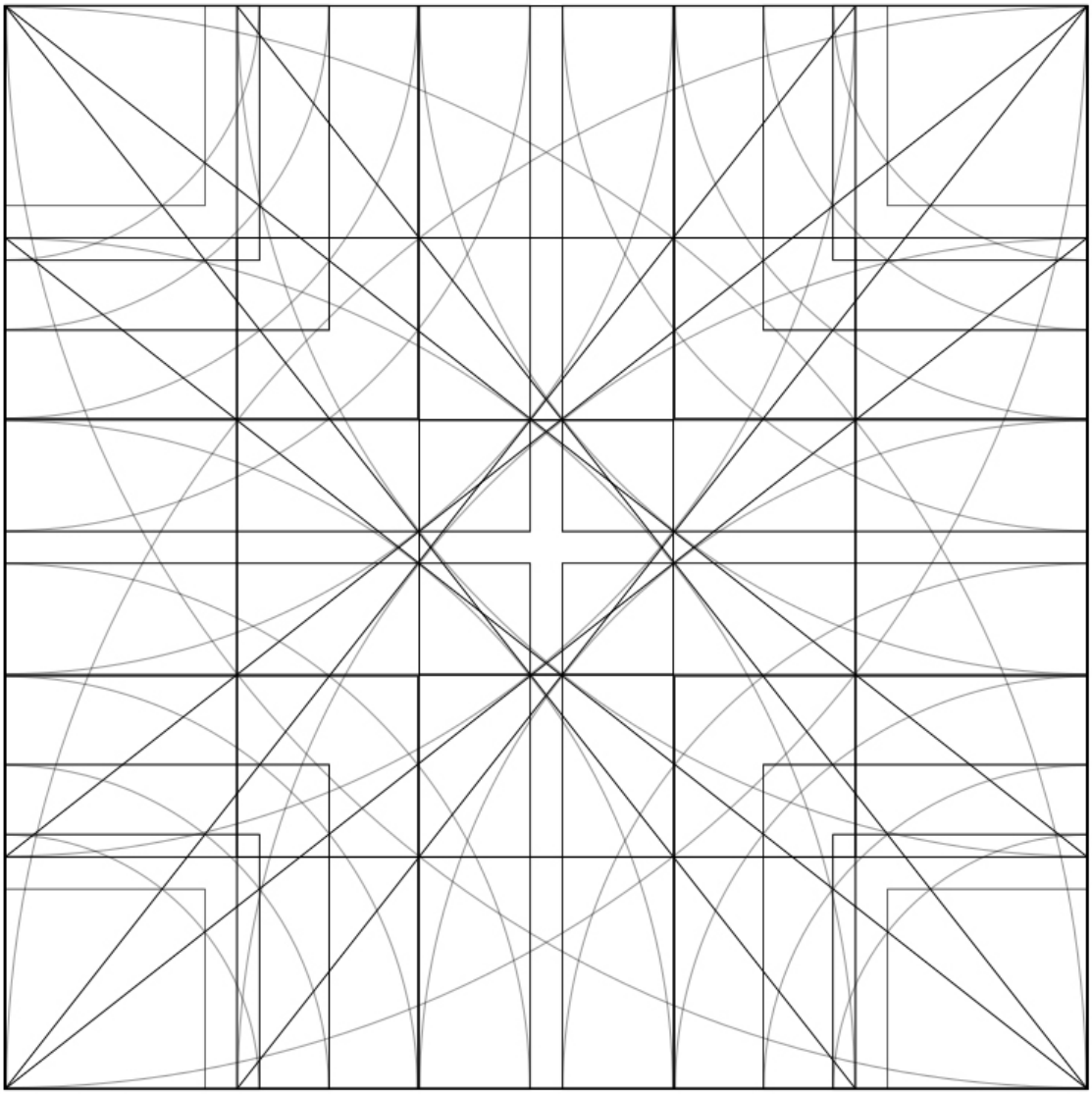
889297802333906441767084172268827515380592173997026423023851194242244081992685573437499657987944611238911016107551387207358281657572181 88..

Pi as a Fraction

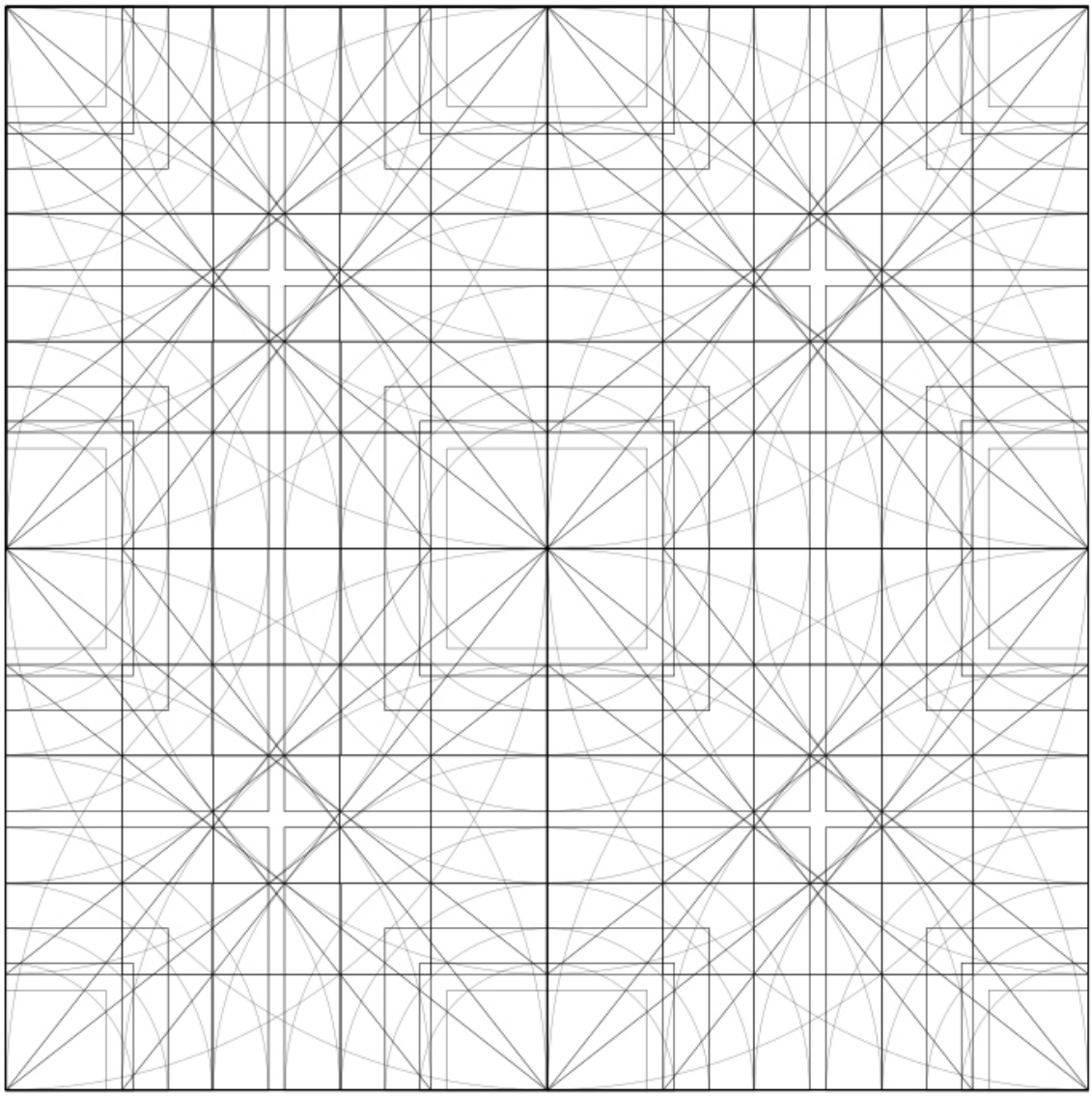
$$\pi = 4\sqrt{\sqrt{5/4} - \sqrt{1/4}}$$

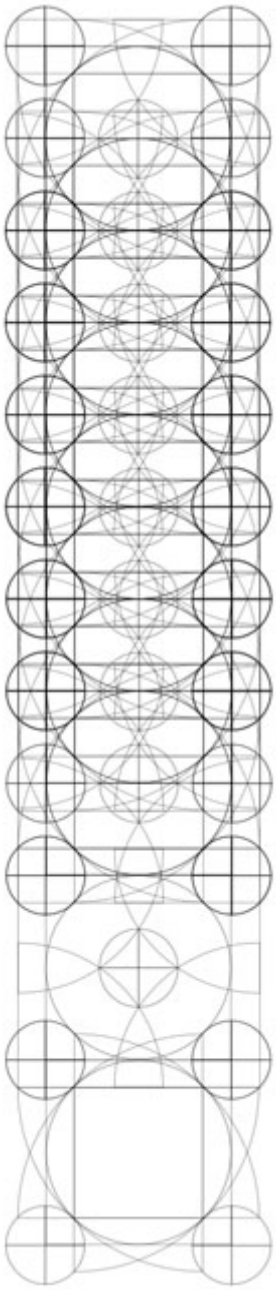
The Symettry

The Extended Squared Circle



The Perfect Symmetry





3.14

Folding Circles