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Betreff:
Datum: 18. Dezember 2022 um 14:49
An:

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The Non-Transcendental Value of π and the Squaring of the Circle

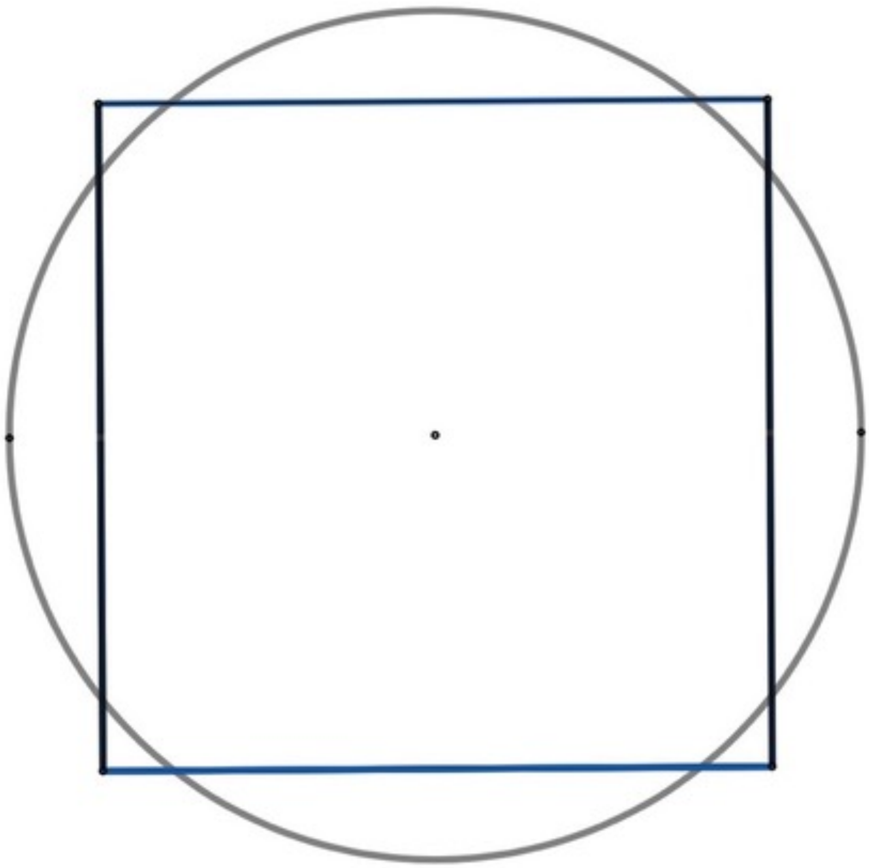
Basically, we have to work not with linear magnitudes but with Areas.

Let's take a Circle of Diameter 1 and a Square of side b, with the Perimeter of the given Circle.
So, we have that:

$4b = \pi$
Using **$4b$** as **π** we calculate the Area of the Circle: **$4b * r^2 = b$**
And the Area of the Square:
$b * b = b^2$

We draw a Square of side 1, inscribe the Circle and following, we draw the Square with the Perimeter of the Circle.
We inscribe now a Circle in the Square 4b, followed by a Square with the same Perimeter of this Circle.

Repeat the sequence at will until we obtain the following Figure, where the values in the diagonal represent the Area of the Squares and, in the vertical, the Area of the Circles.



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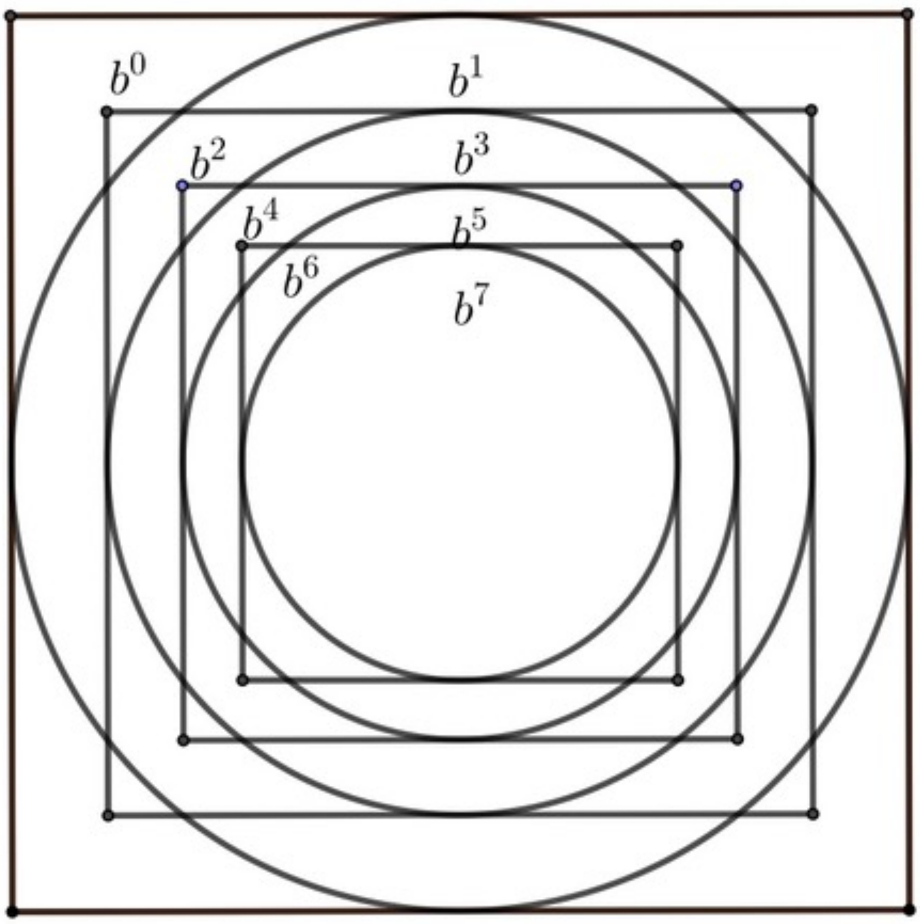
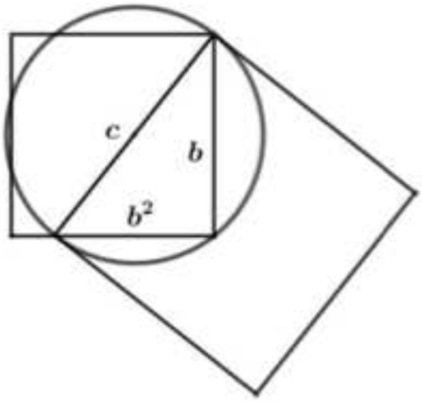


As we can see, every row of three consecutive values of **b** can be reduced to "**1**; **b** and **b^2**.
Which justifies, to begin with the Square of side 1.

With **1**; **b** and **b^2** we have three values of the same magnitude, namely **b**.

Where **b^2** is to **b** as **b** is to **1.**
What we did with this method is to pin down the value of the

Hypotenuse which, consequently, defines the value of **b.** We construct a right triangle and obtain the value of **b**:



$$4b = \pi$$

Areas

$$c^2 = 1$$

$$b\ (circle)$$

$$b^2$$

We apply Pythagoras

$$b^4 + b^2 - 1 = 0$$

$$b = 0.7861513777574233$$

$$\pi = 3.1446055110296932$$

On the approximation of π, 3.1415926

In itself is this approximate value of π not wrong.
What could be wrong by tightening a circle with polygons and adding the length of their sides to obtain the perimeter?

But, evidently, we can't measure space with the same results using a circular line or a straight one, as this calculation of the exact value of π demonstrates.