

MATHEMATICAL NOTES

THE NUMBER π

π is the ratio of the circumference of a circle to its diameter.

$$\pi = \frac{C}{D}$$

π is an irrational number. Expressed to 35 places,

$$\pi = 3.14159265358979323846264338327950288$$

In the ancient orient the value of π was often taken to be 3. Note the following indirect Biblical reference to this value.

Also he made a molten sea of ten cubits from brim to brim, round in compass, and five cubits the height thereof; and a line of thirty cubits did compass it round about.

C=2 π r
30=2 π ·5
30=10 π
3= π

II Chronicles 4:2

We often use $\frac{22}{7}$ or 3.14 as a rational approximation for π . History has uncovered many other rational approximations used in the past.

- $\frac{377}{120}$ (ca. 150 A.D.)
- $\frac{355}{113}$ (ca. 480 A.D.)
- $\frac{62832}{20000}$ (ca. 530 A.D.)
- 3927 (ca. 1150 A.D.)
- 1250

An attempt was made to determine the value of π by legislation in 1897. House Bill No. 246 (Indiana State Legislature):

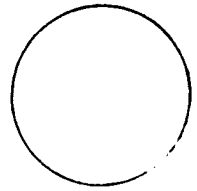
Be it enacted by the General Assembly of the State of Indiana: It has been found that a circular area is to the square on a line equal to the quadrant of the circumference, as the area of an equilateral rectangle is to the square on one side ...

The bill passed the House, but was shelved by the Senate.

6 is a factorial number.
6 is a perfect number.
6 is a triangular number.

Six is a number perfect in itself, and not because God created all things in six days, rather the converse is true! God created all things in six days because this number is perfect even if the work of the six days did not exist.

- Saint Augustine



GIVEN A CIRCLE AND THE REGION ENCLOSED BY IT. IF ONE MAKES SEVEN STRAIGHT SLICES ACROSS THE CIRCLE, WHAT IS THE MAXIMUM NUMBER OF REGIONS INTO WHICH THE CIRCLE CAN BE DIVIDED?

AS AN EXAMPLE, WITH TWO STRAIGHT SLICES ACROSS THE CIRCLE, IT CAN BE DIVIDED INTO THREE OR FOUR REGIONS (SEE BELOW.). HENCE THE MAXIMUM NUMBER OF REGIONS FOR TWO SLICES IS FOUR.

