A FEW STATISTICS ON THE FIRST 25 DIGITS OF PI

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Reference: Griffiths, David J. (2005), Introduction to Quantum Mechanics, 2nd Edition; Pearson Education - Problem 1.10.

Here are a few statistical properties of the first 25 digits of π (if you want more digits, here's a link to the first million digits):

$$\pi = 3.1415926535897932384626643\ldots \tag{0.1}$$

The frequency of each digit and the probability of getting each one are:

Digit j	N_j	P_j
0	0	0
1	2	0.08
2	3	0.12
3	5	0.2
4	3	0.12
5	3	0.12
6	3	0.12
7	1	0.04
8	2	0.08
9	3	0.12

The most probable digit is 3, the median is 4 (there are 10 digits < 4 and 12 digits > 4 so that's as close as we can get to dividing the distribution equally) and the average is 4.72.

We can get the variance by calculating $\langle N^2 \rangle - \langle N \rangle^2$, so we get $\langle N^2 \rangle = \frac{710}{25} = 28.4$; $\sigma^2 = 28.4 - (4.72)^2 = 6.1216$. The standard deviation is

$$\sigma = 2.474 \tag{0.2}$$

We'd need to use quite a few more digits to get a properly random collection of numbers.