

Free Particles and Pi

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Dec. 19, 2007

Years ago I had a conversation with my then-girlfriend; a non-mathematician. I was explaining to her the Gaussian distribution, and how it is useful in determining the probable location of a free particle shortly after wavefunction collapse.

“I see that the Gaussian distribution depends upon pi,” she said. “How can it be that the probable location of a particle depends so crucially upon the ratio of the circumference of a circle to its diameter?”

I had to laugh.

“You have it backwards,” I said. “It’s the ratio of the circumference of a circle to its diameter that depends crucially upon the probable location of a free particle.”

I continued laughing for several minutes.

This is how she became known as the “ex.” One of the exes, anyway. I have similar stories for the others.