

Re: Standard Deviation & the 68–95–99.7 rule

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- *From:* Virgil <Virgil@xxxxxxx>
 - *Date:* Fri, 21 Dec 2007 16:12:07 –0700
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In article

<befa0c10–aa71–454d–8b95–60c00767bb32@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, Maya <maya_souj@xxxxxxxxxxx> wrote:

On Dec 21, 1:58 pm, Maya <maya_s...@xxxxxxxxxxx> wrote:

On Dec 21, 1:02 pm, "FredJeffr...@xxxxxxxx" <FredJeffr...@xxxxxxxx> wrote:

On Dec 21, 11:39 am, Maya <maya_s...@xxxxxxxxxxx> wrote:

At the bottom of the intro to the Wikipedia entry on the 68–95–99.7 rule, it states:

"This rule is often used to quickly get a rough estimate of something's probability, given its standard deviation."

What an awful sentence.

What " thing's " probability could I estimate, given the thing's

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standard deviation? Let's say I have this data set: {6, 6, 8, 8} .
It's standard deviation is 1. So, given its "1", I can estimate the probability of what?

http://en.wikipedia.org/wiki/68-95-99.7_rule

You also need the mean, in the case of your data set 7. So the 68–95–99.7 rule says that about 68% of observations will be within 1 of 7 (between 6 and 8), 95% within 2 of 7 (between 5 and 9) and 99.7% within 3 of 7 (between 4 and 10) IF your data set were distributed normally.

Say you have a normally distributed data set with mean 7 and standard deviation 1. Pick an element at random from your set. The probability of that element's being between 6 and 8 is 68%, the probability of its being between 5 and 9 is 95%, etc.

There is a better example at the bottom of this page:<http://www-stat.stanford.edu/~naras/jsm/NormalDensity/NormalDensity.html>

Thanks Fred.

This stuff seems to be going in a circle. The Empirical Rule applies only to Normal Distributions. So I can ascertain some things about the data points in a normal distribution by applying the empirical rule, but I should only apply the empirical rule if I'm first sure that the data set is a normal distribution!

I'm trying to find a real-world use for Standard Deviation and the Empirical Rule, but so far it seems the only uses are to tell me things about a data set if and only if I already know those very things about the data set are already true.– Hide quoted text –

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– Show quoted text –

I thought the result of calculating the Standard Deviation of a data set would tell me whether the data set's distribution is Normal, Continuous, or Discrete?

If it can't tell me that, then what good is it to know that data points are either: 1)close to the mean, or 2)not so close to the mean ?

Among other things, this sort of information is used in statistical hypothesis testing, q.v.

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