

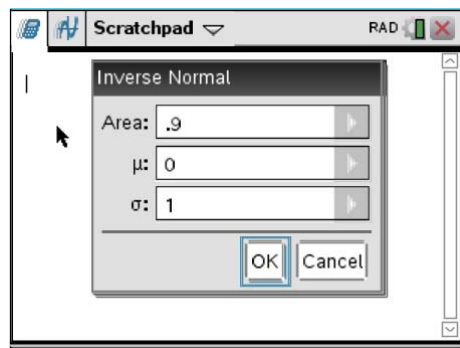
6. Finding Values from Areas in a Normal Distribution

The **invNorm** command calculates the value corresponding to a given percentile in a Normal distribution. The syntax is **invNorm**(area to the left, mean, standard deviation). Let's use this command to confirm the 90th percentile for the ITBS vocabulary scores in Gary, Indiana. Note that we can do the calculation using the standard Normal distribution or the Normal distribution with mean 6.84 and standard deviation 1.55.

Let's start with a "clean slate" on the Scratchpad by clearing the entries. To do this, press **(menu)** → *Actions* → *Clear History*. Your scratchpad should now be blank.

Using the standard Normal distribution: What is the 90th percentile of the standard Normal distribution?

Press **(menu)** → *Statistics* → *Distributions* → *Inverse Normal*. A dialogue box will appear. Type the numbers in the dialogue box shown. To enter the numbers, **(tab)** between the entry boxes. When the last number is entered **(tab)** to **OK** and press **(enter)**.



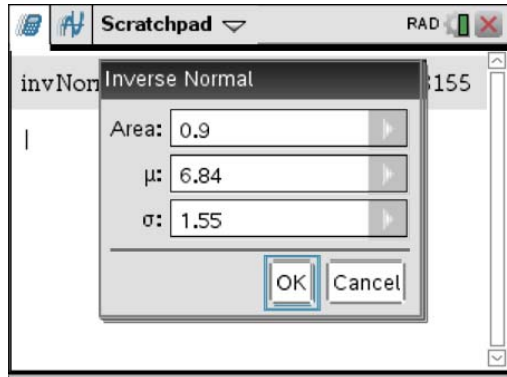
This result matches what we got using table A.



Using the unstandardized Normal distribution: What is the 90th percentile of a Normal distribution with mean $\mu = 6.84$ and standard deviation $\sigma = 1.55$?

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Press **(menu)** → *Statistics* → *Distributions* → *Inverse Normal*. A dialogue box will appear. Type the numbers in the dialogue box shown. To enter the numbers, **(tab)** between the entry boxes. When the last number is entered **(tab)** to **OK** and press **(enter)**.



The result should now be displayed on the main screen.

