Chapter 11 / **Example 19**

The inverse normal function

The weights of apples follow a normal distribution with a mean of 45 g and a standard deviation of 5 g. Apples are rejected from sales if they do not fall in the central 80% of the distribution.
Find the value of the limits within which the central 80% of the distribution lies.

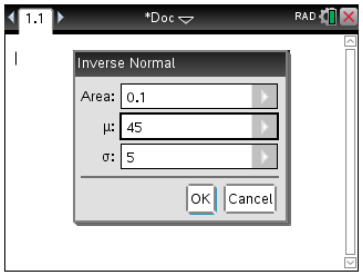
The TI-84 Plus C finds the lower tail when you use the inverse normal function. In order to find the central 80%, you must find values of α and β for which $\mathrm{P}(X < \alpha) = 0.1$ and $\mathrm{P}(X < \beta) = 0.9$.

Open a new document and add a Calculator page.

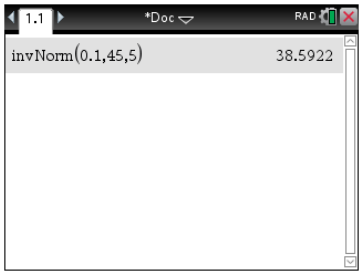
Press menu 5:Probability | 5:Distributions | 3:Inverse Normal…

Enter the Area as 0.1, μ as 45 and σ as 5.

Press enter.



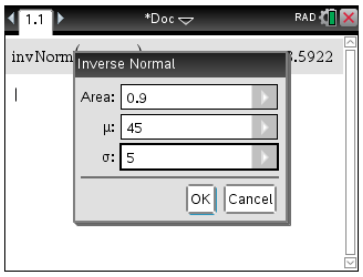
$\alpha = 38.6$.



Press menu 5:Probability | 5:Distributions | 3:Inverse Normal…

Enter the Area as 0.9, μ as 45 and σ as 5.

Press enter.



$\beta = 51.4$.

Hence 80% of the distribution lies in the interval $[38.6, 51.4]$.