

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.

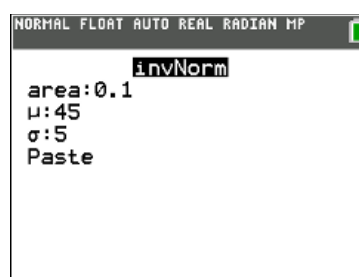
Find the value of the limits within which the central 80% of the distribution lies.

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 $P(X < \alpha) = 0.1$ and $P(X < \beta) = 0.9$.

Press **2nd** **vars** (**[distr]**) 3:invNorm(.

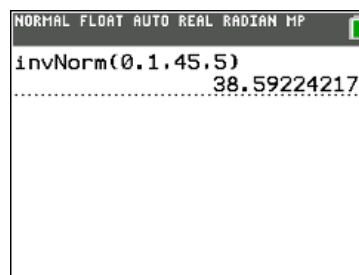
Enter the Area as 0.1, μ as 45 and σ as 5.

Navigate to Paste and press **enter**.



Press **enter**.

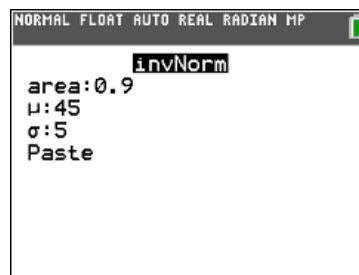
$\alpha = 38.6$.



Press **2nd** **vars** (**[distr]**) 3:invNorm(.

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

Navigate to Paste and press **enter**.



Press **enter**.

$\beta = 51.4$.

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

