Chapter 13 / **Example 12**

Using the normal distribution

The weights of cauliflowers purchased by a supermarket from their suppliers are distributed normally with mean 821 g and standard deviation 40 g.
Cauliflowers weighing less than 750 g are classified as small.

a Predict the number of cauliflowers classified as small in a sample of 400 cauliflowers.

b The heaviest 8% of cauliflowers are classified as oversized and re-packaged. Find the range of weights of cauliflowers classified as oversized.

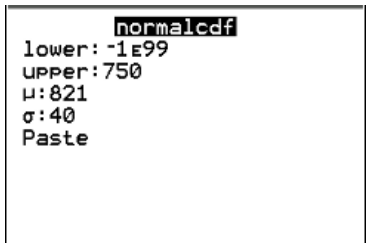
$W \sim \mathrm{N}(821, 40^2)$ find $P(W \leq 750)$.

Press 2nd vars ([distr]) 2:normalcdf(.

Set the Lower bound as -1E99, the Upper Bound to 750, μ to 821 and σ to 40.

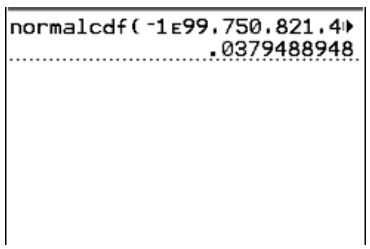
−1E99 means -1×10^{99} - a very small number. To enter E, press 2nd , [EE][format]

Navigate to Paste and press enter.



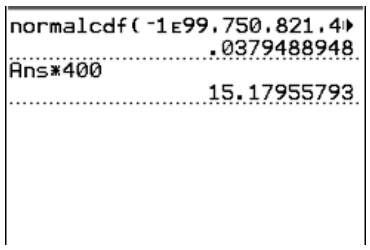
Press enter.

$P(W \leq 750) = 0.0380$.



The expected number of cauliflowers is
$400 \times P(W \leq 750) = 15.2$.

15 cauliflowers are predicted to be classified as small.



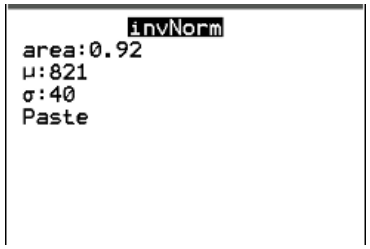
To use the inverse normal function, find $1 - \mathrm{P}(W < w) = 0.08$,
that is $\mathrm{P}(W < w) = 1 - 0.08 = 0.92$.

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

Enter the Area 0.92.

Set μ to 821 and σ to 40.

Navigate to Paste and press enter.



Chapter 13 / **Example 12**

Using the normal distribution

Press enter. $w = 877.2$. Cauliflowers weighing at least 877 g will be classified as oversized.	normalcdf(-1E99,750,821,40 .0379488948 Ans*400 15.17955793 invNorm(0.92,821,40) 877.2028624