5. TECHNOLOGY CORNER

FROM *z*-SCORES TO AREAS, AND VICE VERSA

TI-Nspire instructions in Appendix B; HP Prime instructions on the book's Web site.

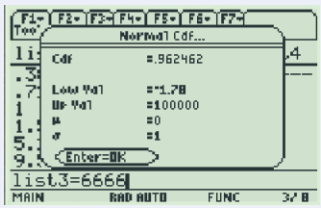
Finding areas: The `normalcdf` command on the TI-83/84 (`normCdf` on the TI-89) can be used to find areas under a Normal curve. The syntax is `normalcdf(lower bound,upper bound,mean,standard deviation)`. Let's use this command to confirm our answers to the previous two examples.

1. What proportion of observations from the standard Normal distribution are greater than −1.78?

   Recall that the standard Normal distribution has mean 0 and standard deviation 1.

TI-89

- In the Stats/List Editor, Press F5 (Distr) and choose Normal Cdf(.
- In the dialog box, enter these values: lower:−1.78, upper:100000, μ:0, σ:1, and then choose ENTER.

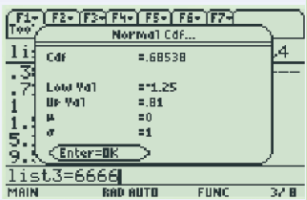


Note: We chose 100000 as the upper bound because it's many, many standard deviations above the mean.

These results agree with our previous answer using Table A: 0.9625.

2. What proportion of observations from the standard Normal distribution are between –1.25 and 0.81?

   The screen shots below confirm our earlier result of 0.6854 using Table A.



Working backward: The TI-89 invNorm function calculates the value corresponding to a given percentile in a Normal distribution. For this command, the syntax is invNorm(area to the left,mean,standard deviation).

3. What is the 90th percentile of the standard Normal distribution?

TI-89

- In the Stats/List Editor, Press F5 (Distr), choose Inverse, and Inverse Normal….
- In the dialog box, enter these values: area:.90, μ:0, σ:1, and then choose ENTER.