



14. TECHNOLOGY CORNER

GEOMETRIC PROBABILITY ON THE CALCULATOR

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

There are two handy commands on the TI-89 for finding geometric probabilities: `geometpdf` and `geometcdf`. The inputs for both commands are the success probability p and the value(s) of interest for the geometric random variable Y .

`geometpdf` (p, k) computes $P(Y = k)$

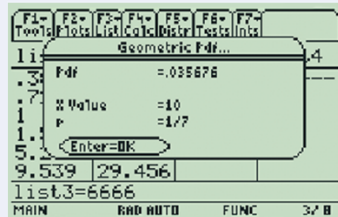
`geometcdf` (p, k) computes $P(Y \leq k)$

Let's use these commands to confirm our answers in the previous example.

- (a) Find the probability that the class receives exactly 10 homework problems as a result of playing the Lucky Day Game.

TI-89

- In the Stats/List Editor, Press **[F5]** (Distr) and choose Geometric Pdf....
- In the dialog box, enter these values: Prob Success, $p:1/7$, X value:10, and then choose **[ENTER]**.

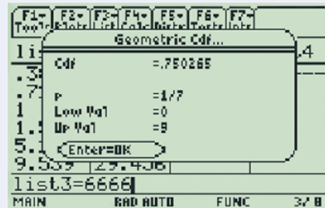


These results agree with our previous answer using the geometric probability formula: 0.0357.

- (b) Find $P(Y < 10)$ and interpret this value in context. To find $P(Y < 10)$, use the `geometcdf` command:

$$P(Y < 10) = P(Y \leq 9) = \text{geometcdf}(1/7, 9)$$

- In the Stats/List Editor, Press **[F5]** (Distr) and choose Geometric Cdf....
- In the dialog box, enter these values: Prob Success, $p:1/7$, Lower value:0, Upper value:9, and then choose **[ENTER]**.



These results agree with our previous answer using the geometric probability formula: 0.7503.