

TECHNOLOGY CORNER Analyzing random variables on the calculator

Let's explore what the calculator can do using the random variable $X =$ Apgar score of a randomly selected newborn.

1. Start by entering the values of the random variable in L1 (list1) and the corresponding probabilities in L2 (list2).

L1	L2	L3	1
0	.001	-----	
1	.006		
2	.007		
3	.008		
4	.012		
5	.02		
6	.038		

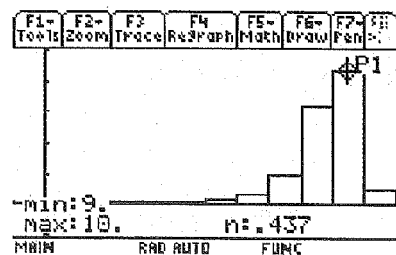
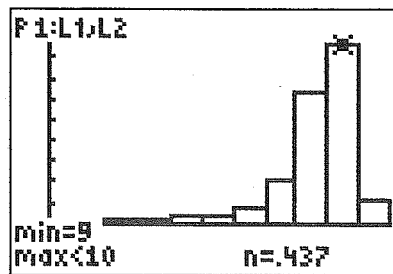
L1(1)=0

F1-Tools	F2-Plots	F3-List	F4-Calc	F5-Distr	F6-Tests	F7-Intc
list1	list2	list3	list4			
0	.001					
1	.006					
2	.007					
3	.008					
4	.012					
5	.02					

list1(1)=0
MAIN RAD AUTO FUNC 2/6

2. To graph a histogram of the probability distribution:

- Set up a statistics plot with Xlist: L1 (list1) and Freq: L2 (list2).
- Adjust your window settings as follows: Xmin = -1, Xmax = 11, Xscl = 1, Ymin = -0.1, Ymax = 0.5, Yscl = 0.1.
- Press **GRAPH** (\blacklozenge **F3**) on the TI-89.



3. To calculate the mean and standard deviation of the random variable, use one-variable statistics with the values in L1 (list1) and the probabilities (relative frequencies) in L2 (list2).

TI-83/84: Execute the command 1-Var Stats L1,L2.

TI-89: In the Statistics/List Editor, press **F4** (Calc) and choose 1: 1-Var stats... Use the inputs List: list1 and Freq: list2.

1-Var Stats	
\bar{x}	=8.128
Σx	=8.128
Σx^2	=68.13
S_x	=
σ_x	=1.437225104
$\downarrow n$	=1

F1-Tools	1-Var Stats...		F4
list1	\bar{x}	=8.128	
list2	Σx	=8.128	
list3	Σx^2	=68.13	
list4	S_x	=undef	
list5	σ_x	=1.43723	
list6	n	=1	
list7	Min	=0	
list8	Q1	=8	

Enter=OK
MAIN 2ND RAD AUTO FUNC 1/6