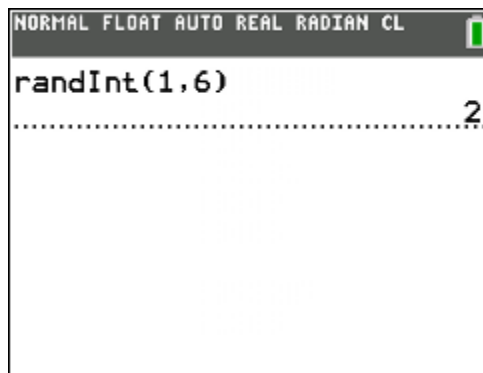


Pepsi vs. Coke

In this activity, we want to determine if students can tell the difference between two popular sodas. The students will be given 3 cups of soda. Two will be of one type and the other will be of the other type. The goal is not to be able to determine which is Coke and which is Pepsi but to be able to tell which cup contains a soda different from the other two. We are interested in determining the proportion of students that can tell a difference in the sodas.

What are some things to keep in mind in conducting this study in order to validate the results? How will we account for these?

- Don't let students see you fill the cups.
- Control for temperature/carbonation.
- Randomize the order of the cups.
 - 1. PPC 2. PCP 3. CPP 4. CCP 5. CPC 6. PCC
 - Use the RandInt command to randomize the arrangement.



Each student will take the taste test. The student administering the test will record the result (correct or incorrect in identifying the different soda)

Results: We are interested in the proportion of correct choices. Record the number of correct and incorrect choices in the table below. (Let's say that 14 out of 29 chose correctly)

Correct	Incorrect
14	15

- What proportion of the students chose correctly?
- If a student were blindly guessing, what proportion would he/she have guessed correctly?
- Did our class do better than blindly guessing? Was our proportion significantly higher than blindly guessing to say that some students can distinguish between the flavors of two popular sodas?

Simulate 50 classes blindly guessing using the calculator.

Trial	Number correct		Trial	Number correct
1			26	
2			27	
3			28	
4			29	
5			30	
6			31	
7			32	
8			33	
9			34	
10			35	
11			36	
12			37	
13			38	
14			39	
15			40	
16			41	
17			42	
18			43	
19			44	
20			45	
21			46	
22			47	
23			48	
24			49	
25			50	

Populate L1 with 29 random locations of the odd soda.

[illegible]

Populate L2 with 29 random guesses.

NORMAL FLOAT AUTO REAL RADIAN MP					
L1	L2	L3	L4	L5	2
2	-----	-----	-----	-----	
3					
1					
3					
3					
1					
2					
1					
3					
1					
1					

$L_2 = \text{randInt}(1, 3, 29)$

Compare L1 to L2. Was the guess correct?

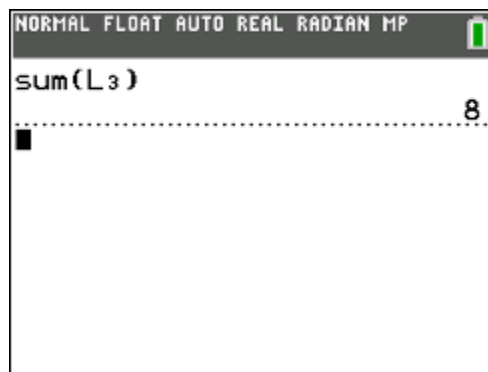
NORMAL FLOAT AUTO REAL RADIAN MP					
L1	L2	L3	L4	L5	3
2	1				
3	1				
1	3				
3	3				
3	1				
1	1				
2	3				
1	3				
3	2				
1	1				
1	1				

$L_3 = L_1 = L_2$

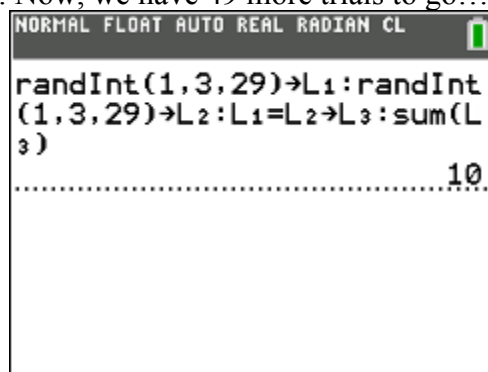
NORMAL FLOAT AUTO REAL RADIAN MP					
L1	L2	L3	L4	L5	
2	1	0			
3	1	0	-----	-----	
1	3	0			
3	3	1			
3	1	0			
1	1	1			
2	3	0			
1	3	0			
3	2	0			
1	1	1			
1	1	1			

L3(1)=0

How many correct guesses were there?



We report this number as Trial 1. Now, we have 49 more trials to go...



Now, you can hit [ENTER] 48 more times to complete the table.

What proportion of these simulations did as well or better than our class did in choosing the different soda? (I would expect this number to be around 2 or 3 out of 50)

Now use this number to describe whether the proportion of correct choices by our class was significantly higher than blindly guessing to say that some students can distinguish between the flavors of two popular sodas.