

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA
1	Aidan Chin																										
2	ECE 202 E8																										
3	8-Dec					(# of consecutive heads or tails)		coin flips																			
4	Simulating P(n), probability of n heads out of 20 throws from any pTails and up to 2000 trials					macrostate	trial #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5							4	1	H	H	H	H	T	H	T	T	T	H	H	T	H	H	H	T	H	T	T
6	input # of trials (up to 2,000)	input pTails		# of coins	pHeads (q)		5	2	H	T	H	T	H	H	H	T	T	T	H	H	T	T	T	H	H	H	H
7	2000	0.5		20	0.5		4	3	H	H	H	H	T	H	T	H	T	H	H	T	T	T	H	T	T	H	H
8							6	4	T	T	H	H	H	H	T	H	H	H	H	T	T	T	T	T	T	H	H
9	smallest macrostate	count T	count H	check pTails			7	5	H	H	T	H	T	T	H	H	H	T	T	T	T	T	T	H	T	T	T
10	1	15896	16104	0.00325			5	6	T	T	T	T	T	H	H	T	H	H	T	H	H	H	H	H	T	T	T
11	largest macrostate	count trials					5	7	T	H	T	H	T	H	T	T	T	T	T	H	H	T	T	T	H	T	H
12	13	1					4	8	T	H	H	H	H	T	H	H	T	H	H	T	H	T	T	H	H	H	T
13							5	9	T	H	H	T	T	H	T	T	H	T	H	H	H	H	H	T	H	H	H
14		(simulation)	(simulation)				6	10	T	T	T	T	T	H	H	T	H	T	T	T	H	H	T	H	H	H	H
15	macrostate #	# of trials	prob p(n) %				4	11	H	T	H	T	H	T	H	H	H	T	T	T	T	H	H	T	H	H	T
16	1	0	0.00%				5	12	T	T	T	H	T	H	H	T	H	H	T	T	T	T	T	H	H	T	H
17	2	35	1.75%				5	13	H	H	T	T	H	H	H	H	H	T	T	H	T	T	H	T	H	H	T
18	3	413	20.65%				3	14	H	H	H	T	H	H	T	T	T	H	H	T	H	T	T	H	H	T	H
19	4	605	30.25%				4	15	H	T	T	T	T	H	H	T	T	H	T	T	H	T	T	T	H	H	T
20	5	464	23.20%				4	16	T	T	T	H	T	T	H	T	H	H	H	H	T	T	T	H	H	T	H
21	6	233	11.65%				3	17	H	H	T	H	H	H	T	T	H	T	H	H	T	H	T	T	H	T	H
22	7	130	6.50%				4	18	H	H	H	H	T	T	H	T	T	H	H	H	H	T	H	H	T	T	H
23	8	62	3.10%				8	19	H	T	H	T	T	T	H	T	H	T	T	T	T	T	T	T	T	H	T
24	9	23	1.15%				3	20	H	H	T	H	T	T	H	T	T	T	H	H	T	T	T	H	H	T	H
25	10	20	1.00%				5	21	H	H	H	H	H	T	H	H	T	T	H	T	T	T	H	H	H	T	H
26	11	10	0.50%				3	22	H	H	H	T	H	H	H	T	H	T	T	H	H	T	H	T	T	T	H
27	12	4	0.20%				7	23	H	H	T	H	H	H	H	T	H	T	H	H	T	T	T	T	T	T	H
28	13	1	0.05%				3	24	T	H	T	H	T	T	H	H	H	T	T	H	T	T	H	H	T	H	T
29							6	25	T	T	T	T	T	T	H	T	H	T	H	H	T	T	H	H	H	T	T
30							4	26	T	T	T	T	H	T	H	T	T	H	H	H	H	T	H	T	T	H	T
31							4	27	T	H	T	T	H	T	T	H	T	H	T	H	H	H	H	T	H	H	T



	A	B	C	D	E	F	G	H	I
1	for macrostate 0, there are 0 microstates. This is because you cannot have 0 flips in a row if you are looking at both sides of the coin			Macrostate	Number of Mircrostates		Most probable macrostates	4	30.00%
2				0	0		5	25.00%	
3				1	2		3	20.00%	
4				19	4		6	15.00%	
5				20	2		7	5.00%	
6									
7									
8	for macrostate 1, there are 2 combinations because you have TT or HH then alternating H and T								
9									
10									
11									
12									
13	for Macrostate 19, there are 4 microstates because you either have 19 H or T at the beginning or end, 4 combinations								
14									
15									
16									
17	for macrostate 20, there are 2 combinations, either all H or all T								
18									
19									