

One of the first 100 numbers is selected uniformly at random (this can be viewed as rolling a die marked 0-9 twice). We see the sample space below:

00	01	02	03	04	05	06	07	08	09
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

Remember for the uniform distribution, given an event  $E$  and a sample space  $\Omega$  we have

$$P(E) = \frac{|E|}{|\Omega|}$$

where  $|E|$  is the number of outcomes in it.

Each of the following describes an event. Compute the probabilities:

1. The first digit is 0
2. The two digits are equal
3. The two digits are not equal
4. The first digit is larger than the second
5. The first digit is at least as large as the second
6. The second digit is 1
7. Neither digit exceeds 3
8. Both digits exceed 3
9. Only one of the digits exceeds 3
10. The first digit exceeds 3 and the second does not