

Birthday Problem

Class_____ No._____ Name_____

There are 40 persons in my class.

What is the probability

that at least two persons in my class would have the same birthday?

$$\begin{aligned} &P(\text{at least two persons have the same birthday}) \\ &= 1 - P(\text{all 40 birthdays are distinct}) \\ &= 1 - \frac{365 \times 364 \times 363 \times \cdots \times 326}{365 \times 365 \times 365 \times \cdots \times 365} \\ &\approx 1 - 0.109 \\ &= 0.891 \end{aligned}$$

n	p
10	0.11694818
20	0.41143838
30	0.70631624
40	0.89123181
50	0.97037358
60	0.99412266
70	0.99915958
80	0.99991433
90	0.99999385
100	0.99999969

