TABLES

For two-stage events, such as rolling two dice, a table is the most convenient way for listing the sample space (i.e. all the possible outcomes)

Two dice are rolled and their sum is calculated.

a Use a table to list all possible sums.

b What is the probability of rolling a sum of 10?

		2nd die					
	+	**1**	**2**	**3**	**4**	**5**	**6**
1st die	**1**	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	**10**
	5	6	7	8	9	**10**	11
	6	7	8	9	**10**	11	12

b There are 36 possible outcomes.

$$P(\text{sum of } 10) = \frac{3}{36}$$

$$= \frac{1}{12}$$

EXPERIMENT WITH REPLACEMENT

Example: two selections are made from digits $\{1, 2, 3\}$

If replacement is allowed, the possible outcomes are as follows:

		1st		
		1	2	3
2nd	1	(1,1)	(2,1)	(3,1)
	2	(1,2)	(2,2)	(3,2)
	3	(1,3)	(2,3)	(3,3)

In that case, the probability of getting (1,2) is 1/9

EXPERIMENT WITHOUT REPLACEMENT

If replacement is NOT allowed, the possible outcomes are as follows:

		1st		
		1	2	3
2nd	1	×	(2, 1)	(3, 1)
	2	(1, 2)	×	(3, 2)
	3	(1, 3)	(2, 3)	×

In that case, the probability of getting (1,2) is 1/6