


# random variables

example 

Toss a coin 3 times: the sample space is  $\Omega : \{H,T\} \times \{H,T\} \times \{H,T\}$

Define the random variable:  $X =$  the number of heads

What is the probability of each outcome of  $X$ ?

Outcome ( $\omega$ )	HHH	HTH	THH	HHT	HTT	THT	TTH	TTT
$X(\omega)$	3	2	2	2	1	1	1	0

$$P(X = 3) = \frac{1}{8}$$

$$P(X = 1) = \frac{3}{8}$$

$$P(X = 2) = \frac{3}{8}$$

$$P(X = 0) = \frac{1}{8}$$

# random variables

## exercise 1

Toss two dice, the sample space is given by  $\Omega : \{1,2,3,4,5,6\} \times \{1,2,3,4,5,6\}$

Let the random variable  $X$  denote the sum of the two dice.

What is the probability of each outcome  $X$ ?

	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						