11.1 Tree Diagrams and Tables

2	✓	✓	✓								
3	✓	✓									
4	✓										
5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✓	✓	✓	✓	✓			
7	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
9	✓	✓	✓	✓	✓	✓	✓	✓			
10	✓	✓	✓	✓	✓	✓					
11	✓	✓	✓	✓	✓	✓	✓				
12	✓	✓	✓								

W: 7
P: 8
S: 5

Sample space: All possible outcomes of a probability experiment

	1	2	3	4	5	6
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

5, 1
1, 5

$\dfrac{5}{36}$

Probability: $\dfrac{\text{number of favourable outcomes}}{\text{total number of possible outcomes}}$

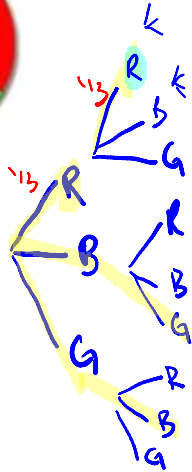$0 \leq P(A) \leq 1$

Example: Find the following probabilities

P(sum of 4) $\dfrac{3}{36} = \dfrac{1}{12}$

P(sum of 7 or 8) $\dfrac{11}{36}$

P(sum is even) $\dfrac{18}{36} = \dfrac{1}{2}$

P(sum is greater than 4) $\dfrac{30}{36} = \dfrac{5}{6}$

P(sum of 7 or 8) $^{11}/_{36}$

P(sum is even) $^{18}/_{36} = ^1/_2$

P(sum is greater than 4) $^{30}/_{36} = ^5/_6$

Find the probability using a **tree diagram**.

P(red) $^1/_3$

P(red in two spins) $^1/_3 \times ^1/_3 = ^1/_9$

P(red in three spins) $\dfrac{1}{21}$

P(blue or green) $^2/_3$

Example
Ellen flips a coin and rolls a four-sided die numbered 1,2,3 and 4

What is the sample space? Use a tree diagram and chart

What is P(H, 4)?   What is P(H, even number)? $= ^2/_8 = ^1/_4$

	1	2	3	4
H	H1	H2	H3	H4
T	T1	T2	T3	T4

$^1/_8$

Assignment: p417   # 6,9-13