



3. Flip a coin, roll a single sided die, and spin a spinner with four equal sections. Without using a diagram make a prediction of the number of outcomes.
4. Randomly select a number between 1 and 100, and a letter from the alphabet. How many possible outcomes are there? Did you make a tree diagram for this or use another method?
5. You roll a standard die. How many possible outcomes are there for a) two rolls? and b) three rolls? c) eight rolls?
6. You are asked to make a password consisting of only six letters. Calculate the number of different passwords if a) repetition is allowed and b) if repetition is not allowed.
7. Your password can now consist of only six characters, but the characters can be either a letter of the alphabet or a digit from 0 to 9. Calculate the number of different passwords if a) repetition is allowed and b) if repetition is not allowed.
8. You are selecting a delegate group from your class to represent you at a district meeting. There are only three positions available and there are 31 people in the class. How many possible ways could you select the group?

### Definition

If a first action can be performed in  $m$  ways, a second action in  $n$  ways, a third in  $p$  ways, .. and so on, then all of the actions can be performed together, in this order, in  $m \times n \times p$  ways (AND)