Conditions

If you have 11 letters, assuming any combination of the letters makes a word, and letters can be used more than once, how many 1 letter words? 3 letter words? 4 letter words? 6 letter words? 11 letter words?

Solution

1) There are 11 letters and one-lettered words. The one-lettered words can be constructed in 11 different ways.
2) There are 11 letters and three-lettered words. They can be constructed by taking 1^{st} letter in 11 ways, then taking 2^{nd} letter in 10 ways and 3^{rd} – in 9 ways. So there are 11*10*9=990 words.
3) 4 letter words – 11*10*9*8=7920
4) 11 letter words – 11*10*9*8*7*6*5*4*3*2*1=11!=39916800 words