

Counting Principles and Probability

Starter

1. (Review of last lesson)

Find the number of permutations of the letters of the word MISSISSIPPI.

Notes

Permutations and combinations can bring in probability so it is important to know how many total ways there are.

E.g. 1 If the letters of the word MINIMUM are arranged in a line at random, what is the probability that the three M's are together at the beginning of the arrangement?

Working: 7 letters in total, 3 M's, 2 I's so total arrangements = $\frac{7!}{3!2!} = 420$
Ways of arranging the 4 non-M letters = $\frac{4!}{2!} = 12$
So probability = $\frac{12}{420} = \frac{1}{35}$

E.g. 2 Ten students are placed at random in a line. What is the probability that the two youngest pupils are separated?

E.g. 3 From a group of 6 men and 8 women, five people are chosen at random. Find the probability that there are more men chosen than women.

Video: [Counting principles and probability](#)

[Solutions to Starter and E.g.s](#)

Exercise

p17 1H Qu 1-5, (6 red)