

Goals

This week:

- Understand the addition and multiplication principles for counting
- Compute number of possible arrangements using permutation
- Develop an understanding of factorial notation and apply it to calculating permutations
- Use ${}^n P_r$ to count number of possible arrangements



Theoretical Components

View the following websites and make notes:

Counting Principles:

- <https://www.coolmath.com/algebra/20-combinatorics/01-counting-principals-01>
- <https://www.khanacademy.org/math/statistics-probability/counting-permutations-and-combinations#permutation-lib>

Numbers types, notations, sets, subsets and Venn Diagrams:

- <https://www.mathsisfun.com/sets/number-types.html>
- <https://www.mathsisfun.com/sets/sets-introduction.html>
- <https://www.mathsisfun.com/sets/venn-diagrams.html>

Set Notation handout (to be completed over the next three weeks)

Practical Components

Do the following questions:

Organise your solutions neatly in your exercise book.

You will require Chapter 12 of Maths Quest 11 Mathematical Methods (pdf – Google Classroom)

- Ex 12A: 1-6, 10-15
- Ex 12B: 1, 3, 5, 7, 9, 10, 18 and 19
- Ex 12C: 6-10
- Ex 12D: All even numbered questions

Mathspace Task

Investigation

See next page

QFO

Quiz/Forum/Other

Make sure you have joined the Google Classroom and Mathspace. If you have not, see your teacher.

Week 2 Investigation

PART A: Prime factorisation

View the following website and investigate prime factors, greatest common factor and lowest common multiple.

<http://www.mathplayground.com/factortrees.html>

Answer the following, showing working:

What is the prime factorisation of 84?

What is the prime factorisation of 72?

What are the GCF and the LCM of 84 and 72?

PART B: Venn diagram

A study was made of 200 students to determine what TV shows they watched.

- 22 students do not watch any TV shows
- 73 students watch only The Crown
- 136 students watch The Crown
- 14 students watch only Legacies and Brooklyn Nine-Nine
- 31 students watch only The Crown and Brooklyn Nine-Nine
- 63 students watch Legacies
- 135 students do not watch Brooklyn Nine-Nine

Construct a Venn diagram and use this to show the number of students who watch all three programs. Show appropriate working.