Introduction to discrete math, sets, logic, proof, project

Discrete math deals with discrete mathematical objects such as integers: - 2, -1, 0, 1, 2, etc.

A set is a collection of objects (numbers, countries, etc.), they are unique (no repetition) and unordered (order does NOT matter).

Since order does NOT matter, the total number of subsets of a set is sum of all the combinations, which means 2T, where T is the number of elements (cardinality) of the set.

How many subsets are there in a set of T elements?

Truth table shows when statement is true or false.

Give truth table for

m4 = 0: NOT

m4 = 1: AND

m4 = 2: OR

m4 = 3: implication

There are different kinds of proof. Prove by induction.

Prove $\sum\_{i=0}^{T}b^{i}=\frac{1-b^{T+1}}{1-b}$.

Relation establishes links between elements of sets.

Binary relation R on the set {1 to e+2} is defined so that *a*R*b* holds if and only if *a* divides *b*, with remainder. Find the matrix and draw the graph.

Is it reflexive, symmetric, anti-symmetric, transitive, composite?

Your project can be about any topic in discrete math, which you like or interested in. You may present your project to the audience.