

CSC236 Assignment 1

second portion of hints

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Here are more hints to help with Assignment 1.

1. You may be able to solve this question using combinatorial identities such as $\binom{n}{k} = n!/k!(n-k)!$. If you use this approach, you must prove that the number of ways of choosing k objects from a set of n is indeed $n!/k!(n-k)!$. It may well be less work to use induction without combinatorial identities.
If you have solved part (a), think about whether you can use that result in solving part (b). How are unordered pairs connected to unordered triples?
2. You may assume the following without proof:

PIGEONHOLE PRINCIPLE: If k is a positive natural number and $k + 1$ objects are partitioned into k sets, then at least one of the sets has at least two elements.
3. Read pages 78–80 in the Course Notes.
4. Look at `NumberTricks.java`, on the course web page, for an example of how a recursive program can be written to mimic a proof by induction.
5. What change can you make to break a connected graph into smaller connected subgraphs (subsets of the set of nodes that are connected)?