1. Write all ways of choosing 3 things out of {a, b, c, d, e} on the left side of a page and all ways of choosing 2 things out of {a, b, c, d e} on the right side. Then, show all the connections between sets {x, y, z} of 3 items and the sets {u,v} of 2 items. Show the count of line in terms of #(sets {x, y, z}) and the count of lines in terms of #(sets {u, v}). Finally, show the resulting equation connecting C(5, 3) and C(5, 2).

2. Towards the end of class on Jan 21, we have seen #(lines from a set {x1, x2, ..., xm} of m items to sets of m-1 items) = m; it is not m-1. Complete the counting of lines to a set like {1, 2, ..., m-1} of m-1 items from sets of m items when there are total n items {1, 2, ..., n} to choose from. This number will depend on both n and m. From this, derive the equation connecting C(n, m) and C(n, m-1) by considering total #(lines). Give all details.

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