Practice Mastery Quiz 1

(1) Give a combinatorial proof of the following identity:
$$\binom{n}{2}2^{n-2} = \sum_{k=0}^{n}\binom{k}{2}\binom{n}{k}$$

(2) How many monomials in variables x, y, and z have total degree 25? (Examples include x^2yz^{22} and x^{25}.)