Assignment 1

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1) A box of oranges is inspected by examining three randomly selected oranges drawn without replacement. If all the three oranges are good, the box is approved for sale, otherwise, it is rejected. Find the probability that a box containing 15 oranges out of which 12 are good and 3 are bad ones will be approved for sale.

Solution: Total number of ways of choosing 3 oranges is ${}^{15}C_3$ i.e., selecting 3 oranges from 15 oranges. Let E denote the event of selecting 3 good oranges
The number of ways of choosing 3 good oranges is ${}^{12}C_3$ i.e., selecting 3 oranges from 12 good oranges. Hence the required probability is

$$\Pr(E) = \frac{{}^{12}C_3}{{}^{15}C_3} \tag{0.0.1}$$

$$= \frac{44}{91} \tag{0.0.2}$$