Assignment 2

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1   Prob. 1.15

A box of orange 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:

E= The probability that the box will be approved for sale

X1= Random variable for first orange

X2=Random variable for second orange

X3=Random variable for third orange

$$P(X1 = 1) = \frac{12}{15}$$

$$P(X2 = 1 | X1 = 1) = \frac{11}{14}$$

$$P(X3 = 1 | X1 = 1, X2 = 1) = \frac{10}{13}$$

$$P(E) = P(X1 = 1) \times P(X2 = 1 | X1 = 1) \times P(X3 = 1 | X1 = 1, X2 =$$

$$P(E) = \frac{12}{15} \times \frac{11}{14} \times \frac{10}{13}$$

$$= \frac{1320}{2730}$$

$$= 0.483$$