# Q : In a certain assembly plant, three machines, B1, B2, and B3, make 30%, 45%, and 25%, respectively of the products. It is known from past experience that 2%, 3%, and 2% of the products made by each machine respectively are defective.

# Now suppose that a finished product is randomly selected. What is the probability that it is defective? (Walpole question)

# If a picked product is defective, what is the prob it is of machine B1 :

# Req : P(B1/D) = ?

# Sol : P(B1^D) / P(D) = [P(D/B1)\*P(B1)] / P(D) =

[Note

A^B B^A

]

(0.02 \* 0.3)/0.024 => 0.245

# If a picked product is defective, what is the prob it is of machine B2 : Req : P(B2/D) = ?

# Req : P(B2/D) = ?

# Sol : P(B2^D) / P(D) = [P(D/B2)\*P(B2)] / P(D)

P(B2^D) / P(D) = [P(D/B2)\*P(B2)] / P(D)

(0.03 \* 0.3)/0.024

0.009/0.024 = 0.375

# If a picked product is defective, what is the prob it is of machine B3 : Req : P(B3/D) = ?

# Req : P(B3/D) = ?

# Sol : P(B3^D) / P(D) = [P(D/B3)\*P(B3)] / P(D)

(0.02 \* 0.3)/0.024 => 0.245

# If a picked product is defective, what is the prob it is of machine B1 :

# Req : P(B1/D) = ?

# Sol : P(B1^D) / P(D) = [P(D/B1)\*P(B1)] / P(D)

# If a picked product is defective, what is the prob it is of machine B2 : Req : P(B2/D) = ?

# Req : P(B2/D) = ?

# If a picked product is defective, what is the prob it is of machine B3 : Req : P(B3/D) = ?

# Req : P(B3/D) = ?

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# book : Probability and Statistics for Computer Scientists

# problem: 2.16

# A computer maker

# problem: 2.17

# A computer assembling

# problem: 2.19 (Optional)

# At a plant, 20%