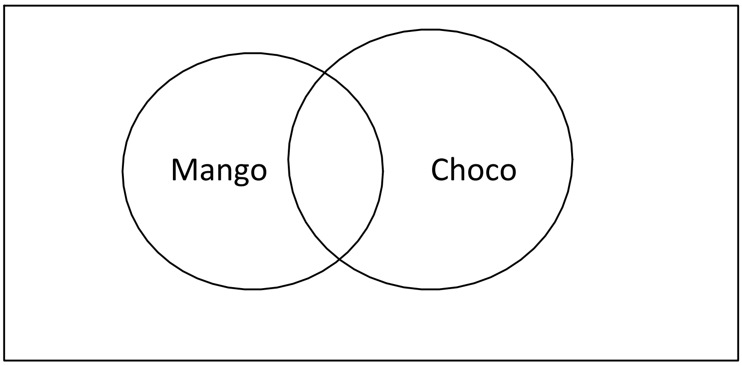
Probability

Thursday, June 22, 2023 12:06 PM

If A and B are independent,
$P(B|A) = P(B)$ & $P(B|A^c) = P(B)$
$P(A|B) = P(A)$ & $P(A|B^c) = P(A)$

Multiplication Theorem:
P(A intersection B) = P(B|A) * P(A) = P(B) * P(A)

A large-scale survey finds that 80% of college students enjoy eating chocolate ice cream, 65% of college students enjoy eating mango ice cream, and 55% of college student enjoy eating both chocolate and mango ice cream. What proportion of college students enjoys eating chocolate or mango ice cream?



P(M) = 0.65
P(Choco) = 0.8

P(M and Choco) = 0.55

P(M union Choco)
= P(M) + P(Choco) - P(M int Choc)
= 0.65 + 0.8 - 0.55
= 0.9

In a large class, the probability of randomly selecting a woman student is 0.65. The probability of randomly selecting a student who is a woman and who earned a grade A is 0.25. If you randomly select a student who is a woman, what is the probability that she earned a grade A?

0.25 / 0.65 = 0.3846

Xi	Pi
23	0.6250000
45	0.1734694
89	0.2015306

23. The number of children per family was determined and summarized in the following table.

Number of Children	Number of families
1	15
2	31
3	24
4	7

Find the expected number, variance, and standard deviation of the number of children per family.