Probability

Assignments

Assignment:

- What is probability?
- Define mutual exclusive and mutual inclusive events.
- Define independent and dependent events.
- Explain Conditional probability.
- Explain Bayes Theorem.
- What is the probability of spinning a prime number or an odd number on a spinner numbered 1 to 8?
- For numbers, one to nine, get the probability of getting a number less than 4 or 2?
- Let X and Y are two independent events such that P(X) = 0.3 and P(Y) = 0.7. Find P(X and Y), P(X or Y).

P(odd or prime) on a spinner marked 1-8

Sample space={1,2,3,4,5,6,7,8}
Total outcomes=8

odd(A) = {1,3,5,7}
Prime(B) = {2,3,5,7}
P(A AND B) = 3/8

Mutually inclusive event

P(AUB) = P(A)+P(B)-P(A AND B)

$= \frac{1}{4} + \frac{1}{4} - \left(\frac{3}{8}\right)$

$= \frac{1}{2} - \frac{3}{8}$

$= 1/8$

S={1,2,3,4,5,6,7,8,9}
P(A) = 3/9 num less than 4
P(B) = 1/9 num less than 2
P(A AND B) = 1/9

Mutually inclusive event

P(AUB) = P(A)+P(B)-P(A AND B)

= 1/3 + 1/9 - (1/9)

= 1/3

Two independent events
P(X) = 0.3
P(Y) = 0.7

P(XUY) = P(X) + P(Y)

= 0.3 + 0.7

= 1

P(X AND Y) = P(X) * P(Y)

= 0.3* 0.7

= 0.21