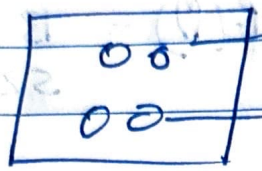
Date: / /

$Pr(Red) = \frac{3}{5}$ # Picked out the red marble



$Pr(Green) = \frac{2}{4}$

Q What is the probability of rolling a "5" & then a "4" in a dice?

Ans ~~Indep~~ Independent Event

Multiplication Rule

$$\boxed{Pr(A \& B) = P(A) * P(B)}$$

$$P(5 \& 4) = \frac{1}{6} * \frac{1}{6} = \frac{1}{36}$$

Q What is the probability of drawing a "queen" & then an "Aces" from a deck of cards.

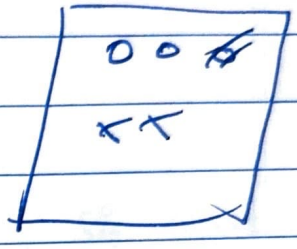
Date: / /

Ans Dependent

$$P(A \& B) = P(A) * P(B/A)$$ → Conditional probability

$$P(G \& R) = P(G) * P(R/G)$$ → Event already occured

→ Bayes Theorem



$$P(Q \& A) = P(Q) * P(A/Q)$$

$$= \frac{4}{52} * \frac{4}{51}$$

Date: / /

Permutation & Combination

Permutation

School trip { chocolate factory } → 6 choices

6 · 5 · 4

$6 \times 5 \times 4 = 120$

Permutation

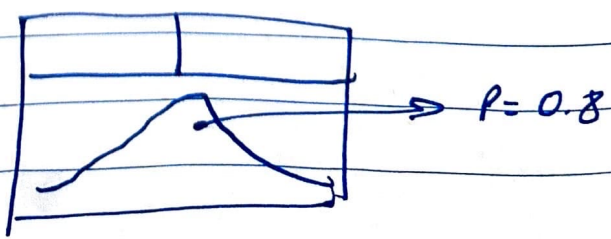
$$^{n}P_{r} = \frac{n!}{(n-r)!} = \frac{6!}{(6-3)!}$$

Combination

$$^{n}C_{r} = \frac{n!}{r!\,(n-r)!}$$

Confidence Interval

P Value



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Every 100 time I touch the mouse pad, 80 times I touch this specific region

→ P value basically says most of the time what is the probability with the respect to the P value for for that specific experiment.

Hypothesis Testing, Confidence Interval, Significance Value

Coin → Test whether this coin is a fair coin or not by performing 100 tosses.

$P(H) = 0.5$, $P(T) = 0.5$ → fair coin.

50/100 times head (The coin is fair)

Hypothesis Testing

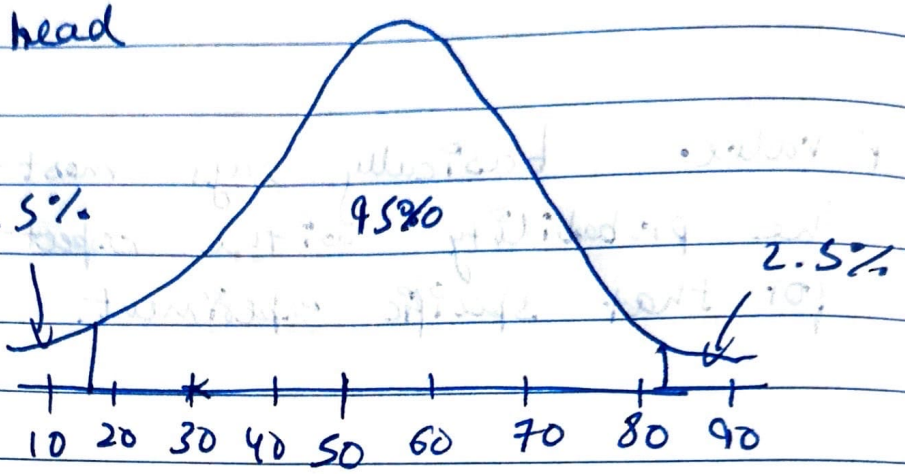
1. Null Hypothesis :- Coin is fair
2. Alternate Hypothesis :- Coin is unfair
3. Experiment
4. Reject or Accept the Null hypothesis.

Date: / /

Q/ What factors affect the interest rate of loans to ban

Ans

30 times head



→ It is always said that experiment should be nearer to the mean.

We need to define that how far it may be away from the mean.

→ Significance Value (α)

Let $\alpha = 0.05$ {Predefined}

$1 - 0.05 = 0.95 \Rightarrow$ 95% Confidence Interval

If our experiment falls in confidence interval, then we can say that our coin is fair. & Vice versa