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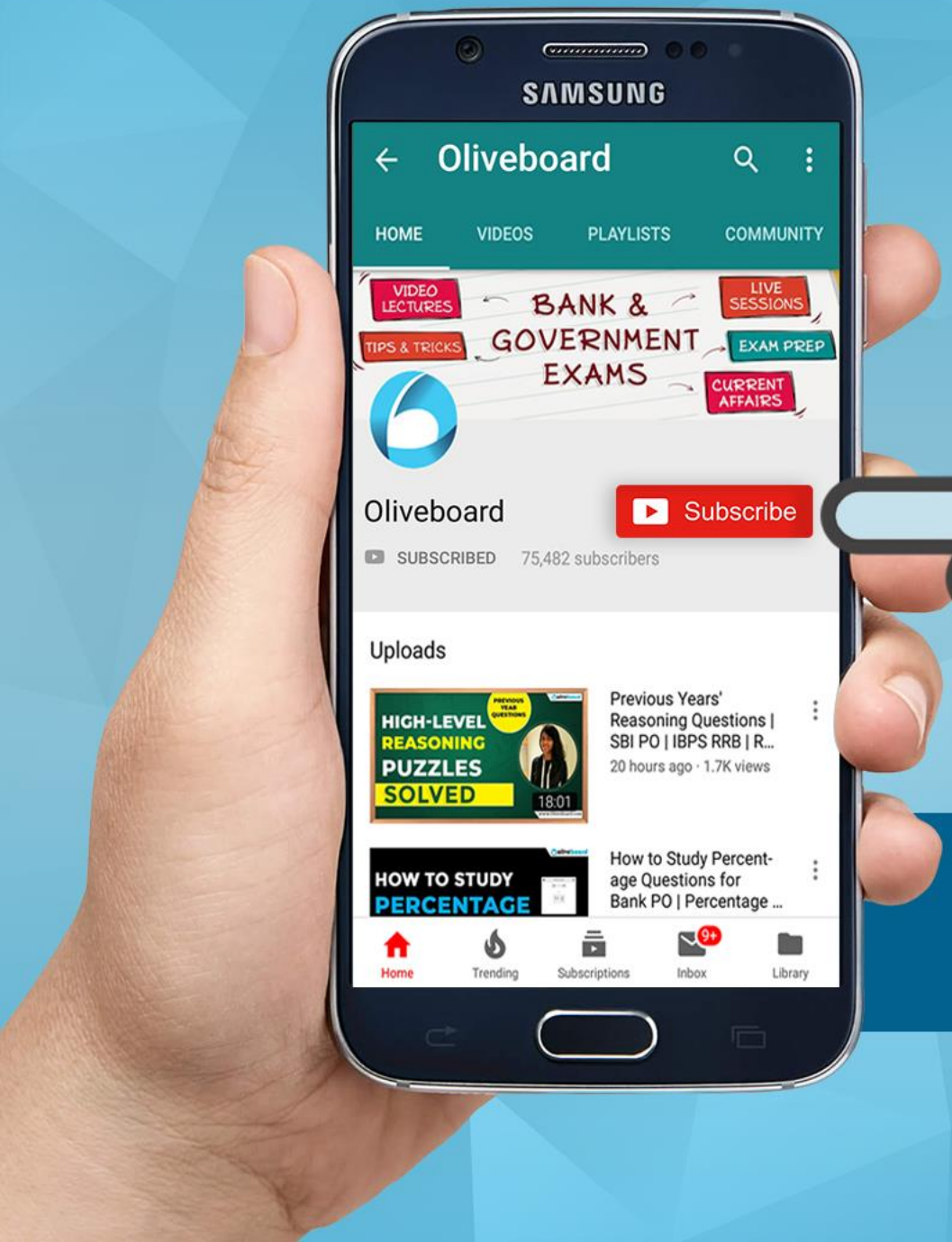

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Probability Tricks & Tips

RBI Grade B | IBPS PO | Indian Bank PO

Probability Tricks and Tips

- Can be easy or difficult
- Requires logic to understand question's approach
- Two main types
  - Simple probability questions (on throwing of 1/2/3 die, or tossing of 1/2/3 coins)
  - Complex probability questions (with logical aspects)

Probability Tricks and Tips

- **Sample Space** = all outcomes of an event (tossing a coin or throwing a dice, for example)
- **Number of Outcomes for Throwing of Dice = 6^n where n is the number of die thrown at once**
  - If 1 dice is thrown, there will be 6^1 = 6 outcomes
  - If 2 die are thrown, there will be 6^2 = 36 outcomes
  - If 3 die are thrown, there will be 6^3 = 216 outcomes
- **Number of Outcomes for Tossing of Coin = 2^n where n is the number of coins tossed at once**
  - If 1 coin is tossed, there will be 2^1 = 2 outcomes
  - If 2 coins are tossed, there will be 2^2 = 4 outcomes
  - If 3 coins are tossed, there will be 2^3 = 8 outcomes

Probability Tricks and Tips

- **Number of Outcomes for Drawing a Card = 52^n where n is the number of sets or decks of cards used**
  - If 1 set of cards = 52^1 = 52 outcomes
  - If 2 sets of cards = 52^2 = 2704 outcomes
  - If 3 sets of cards = 52^3 = 1,40,608 outcomes
- P (A or B) = P(A) + P(B) – P(A and B)
- P (A and B) = P(A) x P(B) [if A and B are two independent events]
- P (A or B) = P(A) + P(B) [if A and B are mutually exclusive events]
- P (A and B) = P(A) x P(B | A) [if A and B are two dependent events]

Probability Tricks and Tips

- **Question Type 1**
- **When 2 die are thrown together, find out the probability that the resulting numbers will sum up to 6?**
  - We know that, 6^2 = 36 outcomes
  - Sample Space (SS) = (1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,1), (2,2), (2,3), (2,4), (2,5), (2,6), (3,1), (3,2), (3,3), (3,4), (3,5), (3,6), (4,1), (4,2), (4,3), (4,4), (4,5), (4,6), (5,1), (5,2), (5,3), (5,4), (5,5), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6)
  - Number of Outcomes with Sum 6 = (1,5), (2,4), (3,3), (4,2), (5,1)
  - Probability = Number of Outcomes with Sum 6 / Total Number of Outcomes
  - **Probability = 5 / 36**

Probability Tricks and Tips

- **Question Type 2**
- **In a bank PO exam, Ajay can get 75% answers correct while Vijay can get 70% answers correct. Assuming that a question is selected at random that both Ajay and Vijay must solve, compute the probability that at least one of them will get the answer right.**
  - Let total number of questions (S) = 100
  - So, Probability of Ajay getting an answer correct = 75/100 = 0.75
  - And, Probability of Vijay getting an answer correct = 70/100 = 0.70
  - Probability of Ajay NOT getting an answer correct = 1 – 0.75 = 0.25
  - Probability of Vijay NOT getting an answer correct = 1 – 0.7 = 0.30
- Why are we computing the probabilities of them NOT getting an answer right?

Probability Tricks and Tips

- **Probability of at least one of them getting the answer means the following cases (all included) –**
  - **Scenario 1** – Only Ajay gets the answer correct and Vijay makes a mistake +
  - **Scenario 2** – Only Vijay gets the answer correct and Ajay makes a mistake +
  - **Scenario 3** – Both Ajay and Vijay get the answer correct
- **Probability of Scenario 1** = **Probability of Ajay getting the answer correct** AND **Probability of Vijay making a mistake** = (75/100) x (30/100) = 0.75 x 0.30 = 0.225
- **Probability of Scenario 2** = **Probability of Ajay making a mistake** AND **Probability of Vijay getting the answer correct** = (25/100) x (70/100) = 0.25 x 0.70 = 0.125
- **Probability of Scenario 3** = Probability of Ajay getting the answer correct AND Probability of Vijay getting the answer correct = (75/100) x (70/100) = 0.75 x 0.7 = 0.525

Probability Tricks and Tips

- Probability of Scenario 1 = Probability of Ajay getting the answer correct AND Probability of Vijay making a mistake = (75/100) x (30/100) = 0.75 x 0.30 = **0.225**
- Probability of Scenario 2 = Probability of Ajay making a mistake AND Probability of Vijay getting the answer correct = (25/100) x (70/100) = 0.25 x 0.70 = **0.125**
- Probability of Scenario 3 = Probability of Ajay getting the answer correct AND Probability of Vijay getting the answer correct = (75/100) x (70/100) = 0.75 x 0.7 = **0.525**
- So, Probability of at least 1 of 2 students (Ajay and Vijay) getting the answer correct = 0.225 + 0.125 + 0.525 = **0.875**

Therefore, there is a 87.5% chance that if Ajay and Vijay are both given a question, at least one of them will solve the question correctly.

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