

Be prepared to find the Banzhaf or Shapley Shubik Power Distribution for a Weighted Voting System and answer questions along the way like below.

1. **BANZHAF** Given [23 : 15, 12, 11, 4]

1A. What is the weight of P_2 ?

1B. Which players are critical in the coalition of $\{P_1, P_2, P_3\}$?

1C. What is the Banzhaf Power Distribution?

1D. How many times is P_3 critical?

1E. What is T (the total number of times the players are critical)?

1F. What is β_1 ?

1G. The best way to describe P_4 is that they...

2. **Shapley-Shubik** Given [23 : 15, 12, 11, 4]

2A. What is the weight of P_2 ?

2B. Which players are pivotal in the coalition of $\{P_1, P_3, P_4, P_2\}$?

2C. Which players are pivotal in the coalition of $\{P_3, P_4, P_2, P_1\}$?

2D. What is the Shapley-Shubik Power Distribution?

2D. How many times is P_3 pivotal?

2E. What is T (the total number of times the players are pivotal)?

2F. What is σ_2 ?