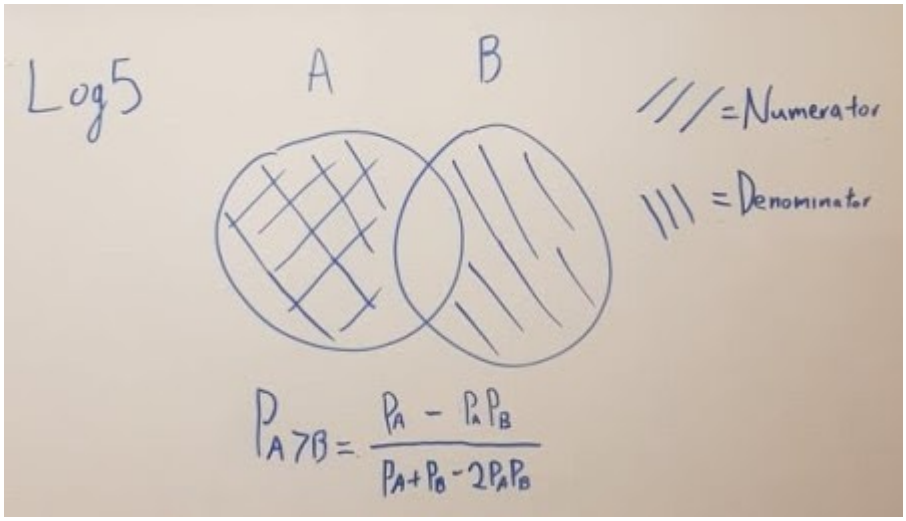
Predictions with the Log5 Formula

The Log5 formula returns the probability that **Team A** will win the game against **Team B** based on teams' win rate. The Log5 formula is:

$$P_{A>B}=\frac{P_A-P_A \times P_B}{P_A+P_B-2 \times P_A \times P_B}$$



A few notable properties exist:

- If PA=1, Log5 will always give A a 100% chance of victory.
- If PA=0, Log5 will always give A a 0% chance of victory.
- If PA=PB, Log5 will always return a 50% chance of victory for either team.
- If PA=0.5, Log5 will give A a 1-PB probability of victory.

In order to calculate the probabilities using the Log5 formula, we need to take into consideration the home and the away. A good approach is to take the following weights:

- 60% by taking into account the Home and Away Win Rate
- 30% by taking into account the Overall Win Rate
- 10% by taking into account the Last 10 Games Win Rate

Let's get these Win Rates:

- Portland Home = 14-7 (66.6%); Dallas Away = 10-10 (50%)
- Portland Total = 25-21 (61%); Dallas Total = 21-19(52.5%)
- Portland Streak = 7-3 (70%); Dallas Streak = 6-4 (40%)

Now we are ready to calculate the Probability of Portland defeating Dallas

```
Por_Home=14/21
Dal_Away=10/20

Por_Total=25/41
Dal_Total=21/40


Por_Streak=7/10
Dal_Streak=6/10
```

```
log5<-function(home, away) {

  prob<-(home-home*away)/(home+away-2*home*away)
  prob
}


prob<-0.6*log5(Por_Home,Dal_Away) + 0.3*log5(Por_Total,Dal_Total) +
0.1*log5(Por_Streak,Dal_Streak)
prob
```

Output:

```
[1] 0.6365786
```

So, according to our logic the weighted Log5 the probability of **Portland to Win the game is 63.65%**.