

TPOT TCG - CARD DROP CHANCES

BOOSTERS:

Boosters contain 5 cards, and have a 20% chance of dropping a holo. Cards can be repeated. There are 80 cards in the regular collection and 15 in the holo collection.

This means that the chances of you getting an specific regular card that you want are:

1. Booster contents:
 - 20% of boosters contain 4 regular cards and 1 holo card
 - 80% of boosters contain 5 regular cards
2. For regular cards:
 - There are 80 cards in the regular collection
 - Each regular card slot has an equal chance of being any of these 80 cards
3. The probability of getting a specific regular card in a single regular card slot remains: $1/80 = 0.0125$ or 1.25%
4. Now, let's calculate the probability of getting the specific card we want in a booster: a) In 80% of boosters (with 5 regular cards): $1 - (79/80)^5 \approx 0.0610$ or 6.10% b) In 20% of boosters (with 4 regular cards): $1 - (79/80)^4 \approx 0.0494$ or 4.94%
5. The overall probability is the weighted average of these two scenarios: $(0.80 * 0.0610) + (0.20 * 0.0494) \approx 0.0587$ or 5.87%

Therefore, the chances of getting the regular card that you want in a single booster pack are approximately 5.87% or about 1 in 17.

And the case of getting a specific holo card:

1. Booster contents:
 - 20% of boosters contain 4 regular cards and 1 holo card
 - 80% of boosters contain 5 regular cards and no holo card
2. For holo cards:
 - There are 15 cards in the holo collection

- When a holo card appears, it has an equal chance of being any of these 15 cards
- 3. The probability of getting a specific holo card in a holo slot is: $1/15 \approx 0.0667$ or 6.67%
- 4. Now, let's calculate the probability of getting the specific holo card we want in a booster: a) In 80% of boosters: Probability = 0 (because these boosters contain no holo cards) b) In 20% of boosters (with 1 holo card): Probability = $1/15 \approx 0.0667$ or 6.67%
- 5. The overall probability is the weighted average of these two scenarios: $(0.80 * 0) + (0.20 * 0.0667) = 0.01334$ or 1.334%

Therefore, the chances of getting the specific holo card that you want in a single booster pack are approximately 1.334% or about 1 in 75.

SECRET TRADER

The trader offers three different deals, each one giving you the opportunity to earn a unique card. Each deal requires you to trade x3 copies of three different cards (9 cards in total) in exchange for a holo card.

1. There are 16 cards in the trader pool (15 regular holos + 1 special card).
2. The secret trader offers 3 deals, each containing a unique holo card.
3. We want to calculate the probability of a specific card being among these 3 offers.
4. The probability of our desired card missing from the offers is: $(15/16) * (14/15) * (13/14) = 13/16 \approx 0.8125$ This is because:
 - For the first card, there's a 15/16 chance it's not our desired card
 - For the second card, there's a 14/15 chance it's not our card (given that the first wasn't)
 - For the third card, there's a 13/14 chance it's not our card (given that the first two weren't)
5. Therefore, the probability of our desired card being present is: $1 - 0.8125 = 0.1875$ or 18.75%

So, with 16 cards in the pool, the chances of getting a specific holo card from the secret trader's 3 deals are 18.75%, or 3 in 16.