



FLAWLESS POKER GUIDE SERIES

6-Max Cash: Advanced Hands, Odds & Positions Guide

Companion to the 6-Max Cash Study Guide · 100bb NLHE · online micro/low stakes: the numbers behind every hand and seat

EDITION · OCTOBER 2026

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Flawless Poker · 6-Max Cash: Advanced Hands, Odds & Positions Guide · October 2026 edition. Study material for use away from the table; charts and ranges are approximate guidelines, not solver output.



Study material, not a live aid. This guide is for study **away from the table**. It is not meant for real-time use while you play, and most sites restrict outside help during hands. Read it before and after sessions, then play from what you remember.

The equities, combos, and odds in this guide were computed with a Python script (exact enumeration of every board where practical, otherwise Monte Carlo with 200,000+ trials per spot, accurate to about $\pm 0.3\%$).

The ranges, grids, and action charts are approximate guidelines, simplified baselines rather than solver output. Adjust them to your opponents, the rake, and stack depths.

How to read this guide

- **Equity** = how often a hand wins if all cards are dealt out, with ties counted as half a win. Equity is not the same as how profitable a hand is: position, playability, and stack depth decide how much of that equity you actually get to keep (*realize*).
- **Odds "X : 1"** = times it misses for each time it hits. 11.8% is about **7.5 : 1** against.
- **bb** = big blinds. At NL50 (\$0.25/\$0.50), 1bb = \$0.50 and a 100bb stack = \$50.
- Grids are the standard 13×13 layout: **pairs on the diagonal, suited hands above it (top right), offsuit hands below it (bottom left)**. X = in the range, o = second action (for example bluff 3-bets), . = fold.
- Positions: **UTG → HJ → CO → BTN → SB → BB**. Opens are 2.5bb (SB 3bb). 3-bets are ~3x in position and ~3.5-4x out of position.

I. Combinatorics: how often you get each hand

There are **1,326** possible two-card starting hands ($52 \times 51 \div 2$), grouped into **169** hand types: 13 pairs, 78 suited, and 78 offsuit.

Hand type	Combos	Probability per deal	Odds against	About once every
Specific pair (e.g. AA)	6	0.45%	220.0 : 1	221 hands
Any pair	78	5.88%	16.0 : 1	17 hands
Specific suited (e.g. AKs)	4	0.30%	330.5 : 1	332 hands
Specific offsuit (e.g. AKo)	12	0.90%	109.5 : 1	110 hands
Specific unpaired hand (AK any)	16	1.21%	81.9 : 1	83 hands
Any suited	312	23.53%	3.2 : 1	4 hands
Any offsuit unpaired	936	70.59%	0.4 : 1	1 hands
AA/KK/QQ	18	1.36%	72.7 : 1	74 hands
AK	16	1.21%	81.9 : 1	83 hands
Suited connectors 54s-JTs	28	2.11%	46.4 : 1	47 hands

Counting combos (card removal)

Situation	Formula	Combos
Unpaired hand, no cards seen (e.g. AK)	4×4	16 (4 suited + 12 offsuit)
Pair, no cards seen (e.g. KK)	$4 \times 3 \div 2$	6
Pair when one of those cards is on the board (KK on K-7-2)	$3 \times 2 \div 2$	3



Situation	Formula	Combos
Set possible with a pair on board? A pair on board (77 on 7-7-2)	$2 \times 1 \div 2$	1 (quads)
Unpaired hand when one card is on board (AK on A-7-2)	3×4	12
Unpaired hand when you hold one card (AK when you hold an A)	3×4	12
Unpaired hand when you hold one and the board has one (AK, you hold A, board A)	2×4	8

Why it matters: On **K-7-2** a villain who shows huge strength might have sets (77, 22: 3 combos each = **6**, plus KK = 3, total **9**) or top pair AK/KQ (12 + 12 = **24** combos). Value hands like top pair outnumber sets by roughly 3 to 1, which is why folding top-pair-top-kicker to one bet is usually a mistake. Against a raise and a re-raise from a passive micro-stakes player, though, the strong combos dominate.

Odds of being dealt hands that matter in a session

Event	Probability	Roughly
Get AA at least once in 100 hands	36.5%	
Get AA at least once in 300 hands	74.3%	
Get AA at least once in 500 hands	89.6%	
Get KK+ or AK at least once in 100 hands	88.2%	
Get a specific pair (e.g. JJ) twice in a row	0.0020%	1 in 48,841
Any pocket pair in 30 hands (1 orbit $\approx$ 6 hands)	83.8%	

2. Preflop all-in equities: classic matchups

Each line is an **exact** enumeration of all 1,712,304 possible boards (all suits shown are specific; small suit effects ± 1 -2% apply).

Matchup	Hand 1 equity	Hand 2 equity	Category
AA vs KK	81.3%	18.7%	Pair over pair
QQ vs AKo (classic flip)	57.2%	42.8%	Pair vs 2 overcards
QQ vs AKs	53.8%	46.2%	Pair vs 2 overcards (suited)
22 vs AKo	53.0%	47.0%	Smallest pair vs 2 overs
TT vs 98s	81.1%	18.9%	Pair vs 2 undercards
AK vs AQ (dominated)	74.0%	26.0%	Domination (shared A)
AK vs KQ (dominated)	74.2%	25.8%	Domination (shared K)
AJ vs AT (kicker)	72.5%	27.5%	Kicker domination
KQ vs JT (two overs)	64.1%	35.9%	Two overs vs two unders
A2o vs KQo	57.7%	42.3%	Ace-high vs two overs to its kicker
JTo vs 22	51.2%	48.8%	Two overs vs pair
87s vs AKo	41.9%	58.1%	Suited connector vs big cards
65s vs AA	23.1%	76.9%	Suited connector vs premium pair
AKs vs AA	12.1%	87.9%	Dominated big hand
A5s vs KK	33.6%	66.4%	Ace blocker vs pair
JJ vs Q9 (one over)	71.3%	28.7%	Pair vs 1 over + 1 under



Matchup	Hand 1 equity	Hand 2 equity	Category
AKs vs QJs	62.7%	37.3%	Two overs (both suited)
99 vs 66 (pair over pair)	80.5%	19.5%	Pair over pair
KQs vs A2s	43.4%	56.6%	Two cards in between
72o vs AKo	32.4%	67.6%	Worst hand vs big cards

Rules of thumb (all confirmed by the numbers above):

- **Pair vs two overcards** $\approx$ 53-57% for the pair. Not a lock. This is the "coin flip".
- **Pair vs two undercards** $\approx$ 80%. **Pair over a smaller pair** $\approx$ 80%; the underpair needs to spike one of two outs.
- **Dominated hands** (sharing a card with a better kicker) win only $\sim$ 25-28%. This is why AQo/KQo/AJo are folds vs tight 3-bets.
- **Suited connectors vs AA** still have $\sim$ 23%. They do not "crush" big pairs; they are profitable only through implied odds and position (Section 7).
- Being **suited adds about 2-4%** equity, much less than most players think.

3. Hand equity vs random hands and vs real ranges

Monte Carlo, 200,000 trials per cell. Ranges used: **UTG open** = 22+, A2s+, KTs+, QTs+, JTs, T9s, 98s, ATo+, KJo+, QJo; **BTN open** = a $\sim$ 43% button range; **Linear 3-bet** = 99+, AJs+, KQs, AQo+; **Polar 3-bet** = TT+, AQs+, AKo plus bluffs A5s-A4s, KJs, QJs, JTs, T9s, 98s, 76s; **4-bet** = QQ+, AK, A5s.

Hand	random	UTG open ($\sim$ 16%)	BTN open ($\sim$ 43%)	Linear 3-bet ($\sim$ 6%)	Polar 3-bet ($\sim$ 8%)	4-bet range ($\sim$ 2.5%)
AA	85.4	84.1	84.4	83.9	82.0	84.3
KK	82.4	75.3	77.9	69.6	70.7	58.7
QQ	79.9	70.0	74.2	58.9	62.1	43.3
JJ	77.3	64.9	70.9	50.7	55.1	39.4
TT	75.0	60.5	67.8	45.2	48.0	39.6
99	72.0	56.7	63.7	39.2	43.6	38.9
77	66.3	51.8	57.1	37.3	41.8	38.8
55	60.4	47.6	52.5	37.1	40.2	37.2
22	50.3	40.6	46.4	35.5	37.8	35.6
AKs	67.0	60.9	65.6	53.2	54.1	45.4
AKo	65.5	59.0	63.6	50.9	51.8	42.5
AQs	66.2	57.5	63.7	42.5	47.8	33.0
AQo	64.4	55.4	61.8	39.2	44.7	29.1
AJs	65.2	54.3	61.9	36.0	46.0	32.9
ATo	62.7	47.5	58.3	29.9	40.9	29.4
KQs	63.4	48.0	55.8	34.5	43.5	27.5
KQo	61.4	45.1	53.3	30.7	40.5	23.6
KJs	62.5	44.9	54.2	34.2	42.0	28.1
QJs	60.2	41.8	51.1	33.0	40.7	30.3
JTs	57.4	40.1	47.8	33.6	38.0	31.0



Hand	random	UTG open (~16%)	BTN open (~43%)	Linear 3-bet (~6%)	Polar 3-bet (~8%)	4-bet range (~2.5%)
A5s	59.9	44.0	51.6	33.1	40.9	32.1
A2s	57.3	41.6	49.6	32.2	39.8	30.4
T9s	53.9	39.5	44.2	31.9	35.3	31.5
87s	48.0	37.9	40.4	30.9	33.5	32.3
65s	43.4	36.6	38.6	31.8	32.6	31.2
T8s	52.1	38.1	42.3	31.1	34.2	30.9
K9o	57.9	37.4	47.6	27.2	34.4	22.8
Q8o	53.5	34.1	41.6	25.5	33.0	24.7
J7o	49.8	32.5	38.4	25.7	30.2	24.5
72o	34.5	26.9	29.8	22.2	24.0	22.6

What the table tells you:

- Against **random hands** almost everything looks good (even J7o is ~50%). Nobody plays random hands, so ignore that column when deciding what to call with.
- **Against a UTG open**, hands like KQo (45%), ATo (48%), and KJs (45%) are underdogs before position is even considered. That is why the base guide says fold most offsuit broadways vs UTG.
- **Against a value 3-bet range**, AQo drops to ~39%, KQo ~31%, and JJ is ~50%. Calling a tight 3-bet OOP with AQo is a long-run loser; JJ is a call or 4-bet only against wider 3-bettors.
- **Against a 4-bet range** (QQ+, AK, A5s), only AA (84%) and KK (59%) are clear all-ins at 100bb. QQ sits at ~43% and AK at ~43-45%, which is close to break-even when you are getting ~1.5:1 on the final call, so it depends on how wide the 4-bettor is.
- **Small pairs and suited connectors** sit around 31-38% vs everything tight. They are never all-in hands preflop at 100bb; they play for implied odds.

Stack-off math preflop

If you are all-in for your last 100bb and villain already put in 100bb, you need **equity ≥ amount you call ÷ final pot**. Example: you 4-bet to 22bb, villain shoves 100bb, you call 78bb into a final pot of 200.5bb (blinds included) → need ~**39%**. From the table, QQ (43%) and AK (43-45%) clear that bar vs a QQ+/AK/A5s range; JJ (39.5%) and AQs (33%) do not.

4. Flop and river odds (exact enumeration of all 19,600 flops)

Your hand	Event on the flop	Probability	Odds against
Pocket pair	Set or better (set, full house, quads)	11.8%	7.5 : 1
Pocket pair	Quads	0.2%	407.3 : 1
88	At least one overcard to your pair	86.7%	0.2 : 1
JJ	At least one overcard (Q, K, or A)	57.0%	0.8 : 1
QQ	At least one K or A	41.4%	1.4 : 1
KK	An ace	22.6%	3.4 : 1
Unpaired (AK)	Pair one or both hole cards	32.4%	2.1 : 1
Unpaired (AK)	Miss completely	67.6%	0.5 : 1
Suited hand	Made flush	0.8%	117.8 : 1



Your hand	Event on the flop	Probability	Odds against
Suited hand	Flush draw (exactly 2 of your suit)	10.9%	8.1 : 1
Suited hand	Backdoor flush draw (1 of your suit)	41.6%	1.4 : 1
87s	Two pair using both hole cards	2.0%	48.5 : 1
87s	Trips (board pairs one of your cards)	1.4%	68.5 : 1
87s	Made straight	1.3%	75.6 : 1
87s	Open-ender/double gutter (8 straight outs)	9.7%	9.3 : 1
87s	Flush draw + straight draw (combo)	3.4%	28.8 : 1
87s	Nothing: no pair, no straight draw, no flush draw	37.6%	1.7 : 1

Set by the turn: 15.5%. **Set (or better) by the river** if you see all five cards: 19.2%. You only see the river for free when someone is all-in, so plan around the **flop number (11.8%)**.

Final hand by the river (all 7 cards, Monte Carlo 300,000 runouts)

Counts the best five-card hand using both board and hole cards (so "Pair" includes boards that pair by themselves).

Final hand	88	87s	AKo	AKs
High Card	—	15.8%	19.7%	18.2%
Pair	35.1%	40.6%	45.6%	43.3%
Two Pair	39.5%	21.7%	22.7%	22.2%
Trips	11.6%	4.3%	4.4%	4.3%
Straight	2.3%	8.6%	3.3%	3.1%
Flush	2.0%	6.5%	1.9%	6.5%
Full House	8.5%	2.2%	2.2%	2.2%
Quads	0.9%	0.1%	0.1%	0.1%
Straight Flush	0.0%	0.2%	0.0%	0.1%

Notice: 88 makes **trips or better ~25%** of the time by the river, but much of that is board-driven full houses and runner-runner; AK ends up with **only high card ~18-20%** of the time when the hand goes to showdown. Suited hands make a flush about **6.5%** of the time versus ~2% for offsuit, which is roughly the 2-4% equity bump you saw in Section 2.

5. Outs, draws, and the rule of 2 and 4

Exact odds of hitting with **n clean outs** (47 unseen cards on the flop, 46 on the turn):

Outs	Example draw	Flop → turn	Turn → river	Flop → river (two cards)	Rule of 4 estimate
2	Pocket pair to a set	4.3%	4.3%	8.4%	8%
3	One overcard / trips	6.4%	6.5%	12.5%	12%
4	Gutshot	8.5%	8.7%	16.5%	16%
6	Two overcards	12.8%	13.0%	24.1%	24%
8	Open-ended straight draw	17.0%	17.4%	31.5%	32%
9	Flush draw	19.1%	19.6%	35.0%	36% (overestimates; use $4n - (n - 8)$)



Outs	Example draw	Flop → turn	Turn → river	Flop → river (two cards)	Rule of 4 estimate
10	Set to full house or better (on turn: 10 outs)	21.3%	21.7%	38.4%	40% (overestimates; use $4n - (n - 8)$)
12	Flush draw + overcard / gutshot + overcards	25.5%	26.1%	45.0%	48% (overestimates; use $4n - (n - 8)$)
15	Flush draw + open-ender	31.9%	32.6%	54.1%	60% (overestimates; use $4n - (n - 8)$)
21	Pair + combo draw	44.7%	45.7%	69.9%	84% (overestimates; use $4n - (n - 8)$)

Rule of 2 and 4: one card to come → outs × 2 (+2 for high counts). Two cards to come **and you're all-in** → outs × 4, minus (outs – 8) when you have more than 8 outs. If you are not all-in, use the one-card number, because villain will bet again on the turn.

Computed draw equities vs a real made hand

These are the **actual** equities (exact enumeration of every turn and river) for real holdings, with a blank turn card for the turn column. Real equity differs from the outs count because some outs are "dirty" (they also improve villain) and some draws have extra backdoor equity.

Situation	Hero	Villain	Flop	Equity on flop (2 cards to come)	Turn card	Equity on turn (1 card)
Nut flush draw (9 outs) vs top pair	Ah 5h	Ks Qd	Kh 7h 2c	45.9%	3d	34.1%
OESD + two overcards vs top pair	Jc Td	As 9d	9s 8h 2c	50.0%	3c	31.8%
Gutshot (4) vs top pair	5c 4d	Kd Qs	Kc 7h 3s	20.3%	Td	9.1%
Two overcards (6) vs top pair	Ac Kd	Ts 9s	9h 6d 2c	22.1%	4s	13.6%
Gutshot + 2 overcards vs pair	Ac Qd	Th 9d	Jh Ts 3c	36.9%	5d	22.7%
Flush draw + bottom pair vs top pair	Ah 7h	Ks Qd	Kh 7c 2h	51.6%	3d	31.8%
Pair + OESD vs overpair	9c 8d	Ac Ad	9h 7s 6c	45.9%	2d	29.5%
Combo draw: FD + OESD (15) vs overpair	Jh Th	As Ad	9h 8h 2c	56.3%	3s	34.1%
Flush draw vs set	Ah 5h	7c 7d	Kh 7h 2c	25.6%	3c	22.7%
Set vs overpair	7c 7d	Ah Ad	7h 4s 2c	89.8%	9c	95.5%
Underpair vs top pair	5c 5d	As Jd	Jh 8s 3c	8.8%	2h	4.5%
Top pair weak kicker vs top pair top kicker	Kh 6d	Ks Ad	Kd 9c 4s	11.8%	2c	6.8%
Overpair vs top pair	Qh Qd	Ks Jd	Jh 8s 3c	79.8%	2c	88.6%
Backdoor-only hand (A-high BDFD) vs pair	Ah 4h	8s 8c	Kc 9h 2d	19.5%	Js	6.8%

**Key lessons:**

- **Big combo draws (15+ outs) are favourites even against an overpair** (56% on the flop). Get all-in with them happily on the flop.
- A **flush draw vs a set** drops to ~26% because the board can pair; the "9 outs" are not all clean.
- A **gutshot alone** (~20% flop, ~9% turn) almost never has the price to call a turn bet without strong implied odds.
- **Two overcards** are only ~22% vs top pair, and some of those outs are dirty when villain has a big kicker.
- **Top pair, bad kicker vs top pair, good kicker** is only ~12%: the dominated-kicker problem from Section 2 keeps going postflop.

6. Pot odds, bluff break-even, and minimum defense

Bet size (fraction of pot)	Caller needs equity	Pot odds offered	Bluff must work (break-even fold %)	Minimum defense frequency (MDF)
25%	16.7%	5.0 : 1	20.0%	80.0%
33%	20.0%	4.0 : 1	25.0%	75.0%
50%	25.0%	3.0 : 1	33.3%	66.7%
66%	28.6%	2.5 : 1	40.0%	60.0%
75%	30.0%	2.3 : 1	42.9%	57.1%
100% (pot)	33.3%	2.0 : 1	50.0%	50.0%
150%	37.5%	1.7 : 1	60.0%	40.0%
200%	40.0%	1.5 : 1	66.7%	33.3%

- **Caller needs** = bet ÷ (pot + bet + call). **Bluff break-even** = bet ÷ (pot + bet). A half-pot bluff only needs to work one time in three.
- **MDF** is the share of your range you must continue with so that any bluff isn't automatically profitable. At micro stakes, players bluff **less** than balanced, so it is fine to fold more often than MDF vs passive players on big river bets.

Semi-bluff math: fold equity + draw equity

A semi-bluff is profitable if **EV = (fold%) × pot + (1 – fold%) × [equity × (final pot) – amount risked] > 0**. Worked example with a nut flush draw on the flop (from Section 5: **45.9%** vs top pair):

Action (pot 10bb, stacks 90bb)	Fold equity needed to break even
Bet 2/3 pot, then call off if raised all-in (approx. as getting it in): EV when called = +4.0bb	0% (profitable even when always called)
Shove 90bb: EV when called = -2.8bb	21.8%

With 46% equity the draw is already +EV when the money goes in, so any fold equity is a bonus. With a weaker draw such as a gutshot (20%), a 90bb shove would need villain to fold 83.7% of the time, which is why gutshots should not stack off.



7. Set mining and implied odds (the 15–20x rule)

You flop a set or better **11.8%** of the time, so you miss 7.5 : 1. Calling a raise with a small pair just to hit a set needs you to win, on average, **7.5x your call** extra when you hit, just to break even, and that assumes your set always wins and always gets paid.

Reality: your set loses to a bigger set or a flush/straight about 10% of the time, and villain does not always pay you off. Adjust:

Assumption	Win needed when you hit (× preflop call)
Get paid 100% of the time, set loses 0%	7.5x
Get paid 75% of the time, set loses 0%	10.0x
Get paid 60% of the time, set loses 10%	13.9x
Get paid 50% of the time, set loses 10%	16.7x

That is where the **15–20x rule** comes from: **only set-mine when the effective stack (smaller of yours and villain's) is at least 15–20 times the amount you must call.**

Spot (100bb stacks)	Call	Effective stack ÷ call	Verdict
Call a 2.5bb open IP	2.5bb	40x	Good set-mine
BB call vs 2.5bb open (1.5bb more)	1.5bb	65x	Easy call with any pair
Call a 9bb 3-bet IP	6.5bb more	~14x	Marginal: only vs players who stack off with overpairs
Call an 11bb 3-bet OOP	8.5bb more	~11x	Fold small pairs
Call a 4bb open from a short-stacked 40bb player	4bb	10x	Fold small pairs
Multiway, 3 callers already	2.5bb	40x, and someone pays you	Great: implied odds go up

8. Hand-by-hand playbooks

Actions use: **Open** (raise first in), **3B** (3-bet), **Call**, **Fold**, **4B** (4-bet). Standard sizes: open 2.5bb (SB 3bb); 3-bet IP ~7.5bb, OOP ~10–11bb; 4-bet ~22–25bb; vs a 3-bet IP call or 4-bet, OOP mostly 4-bet or fold. *These are approximate baselines.*

8.1 Premium pairs: AA, KK, QQ

AA 6 combos, KK 6, QQ 6 • 1.36% of hands combined

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG / HJ	Open 2.5bb	3B vs opens (~3x IP, ~4x OOP)	4B (AA/KK always; QQ 4B or call vs tight)
CO / BTN	Open 2.5bb	3B always	4B; get it in
SB	Open 3bb	3B ~11bb (never flat)	4B / shove
BB	Raise limpers / defend	3B ~11–12bb	4B (BB is OOP, so 4-bet rather than call)

Postflop plan by board texture:

- **Dry high boards (K-7-2r, A-8-3r):** bet small (25–33%) for value on all three streets; you rarely get outdrawn. With QQ on A-x-x, check-call one or two streets rather than betting into the hands that beat you.



- **Wet middling boards (9-8-6 two-tone):** bet bigger (66-75%) to charge draws. If a tight micro player check-raises big here, overpairs are often behind (sets/two pair); fold QQ/KK to multiple big raises from passive players.
- **Low paired boards (5-5-2):** bet small, keep the pot growing; you're way ahead.
- Stack-off rule at 100bb: overpairs are happy to get all-in on most single-raised-pot runouts **unless** a passive opponent raises twice or the board completes obvious draws.

8.2 Mid pairs: JJ, TT, 99

18 combos · ~78-72% vs random, 50-40% vs a value 3-bet

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG / HJ	Open	3B JJ vs HJ/CO opens; call TT/99 IP	Vs 3B: call IP; 4B JJ only vs loose 3-bettors
CO / BTN	Open	3B vs CO/HJ (value), flat vs UTG IP	Vs 3B: call IP
SB	Open 3bb	3B or fold (JJ/TT 3B; 99 3B vs BTN)	Vs 4B: fold TT/99, JJ fold vs tight
BB	—	Call or 3B vs BTN/SB, call vs UTG	—

Postflop plan by board texture:

- An overcard comes on the flop a lot: JJ sees an overcard **57.0%** of the time, 88 **86.7%**.
- **Board with no overcard:** play like an overpair (value bet, 33-66%).
- **One overcard (Q-6-3 with JJ):** check or bet small once for protection and thin value, then pot control. Don't bloat the pot.
- **Two+ overcards:** mostly check/fold to big pressure; you have 2 outs to a set (~8.5% by river from the flop).
- Hit a set: bet big, especially on wet boards; micro players call too much.

8.3 Small pairs: 22-88

6 combos each (42 total) · 11.8% to flop a set

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG	Open 66+ (all pairs at loose tables)	Vs open: call IP (set-mine) if 15-20x	Vs 3B: fold 22-66, call 77-88 IP only if deep
HJ / CO	Open all	Call vs opens IP	Fold to 3B unless 20x+ deep
BTN	Open all	Call vs opens; 3B rare	Fold to most 3Bs
SB / BB	SB open; BB defend	BB: call vs any open ($\geq 40x$ stack:call); SB: fold or 3B vs BTN	—

Postflop plan by board texture:

- **Flop a set:** fast-play on wet boards (bet 66-75%), mix in slowplays only on very dry boards vs aggressive players.
- **Miss the flop:** you're an underpair. Check-fold OOP; IP you can bet once on dry boards where villain misses (A-K-x won't fold, 8-5-2 often will).
- Small pairs are **implied-odds hands**: they lose money when the pot gets big without a set. Never stack off with an underpair.

8.4 AK and AQ

AK 16 combos (4s/12o), AQ 16 · AKo ~65.5% vs random, AK flops a pair 32.4%



Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG / HJ	Open both	3B AK, AQs vs HJ/CO; call AQo IP vs UTG or fold	AK 4B / call; AQo fold to a 3B from UTG
CO / BTN	Open	3B AK, AQ vs CO/HJ; AQs flat vs UTG	Call or 4B AK; AQs call IP; AQo fold vs tight
SB	Open 3bb	3B both vs any open	AK 4B/shove; AQ fold vs a 4B
BB	—	3B vs late opens; call AQo vs UTG	AK get it in

Postflop plan by board texture:

- AK misses the flop **67.6%** of the time. Missing is normal.
- **Top pair top kicker:** value bet 2-3 streets on most boards; vs huge river raises from passive players, fold.
- **Missed, IP:** c-bet small on boards that favour the raiser (A/K/Q-high and dry); check back low connected boards (7-6-5) and take a free card for 6 outs + backdoors.
- **Missed, OOP in a 3-bet pot:** c-bet ~33% on dry boards; give up on boards that hit the caller (9-8-7, 6-5-4).
- AQ is **dominated by AK** (~26% equity): when a tight player puts in a lot of money on an A-high board, AQ is often second-best.

8.5 Broadway hands: KQ, KJ, QJ, AJ, AT, KT, QT, JT

KQs/KQo 4/12 combos · KQo only ~45% vs a UTG range

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG	Open suited ones, AJo+, KJo+	Vs open: fold offsuit; call/3B suited IP	Fold to 3B (KQs may call IP)
HJ / CO	Open all suited; AJo/KQo/KJo/QJo; ATo+ CO	3B KQs/AJs as value-ish vs CO; fold KJo/QJo vs UTG	Fold offsuit to 3B
BTN	Open all	Call IP or 3B vs CO; fold offsuit vs UTG	Call suited IP; fold most offsuit
SB / BB	SB open; BB defend suited, offsuit vs late	BB 3B KQ vs BTN; SB 3B or fold	—

Postflop plan by board texture:

- The danger is **domination**: KJo vs KQ or AJ is ~25-28%. Top pair with a weak kicker is a **one-to two-street hand**.
- **Two-pair / straight boards (Q-J-x, K-Q-T)**: fast-play.
- **Top pair, weak kicker (K-8-3 with KJ)**: bet small once or check-call; fold to big turn + river aggression from passive players.

8.6 Suited aces: A2s-A9s

4 combos each · ~57-64% vs random; A5s blocks AA/AK and makes wheels

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG	Open A2s+ (some fold A6s-A8s at tough tables)	Vs open: call A5s/ATs+ IP; mostly fold	Vs 3B: fold, or 4B-bluff A5s rarely
HJ / CO	Open	3B A5s-A4s as light 3-bets	Fold to 3B
BTN	Open	3B A5s-A2s as bluffs vs CO; call A9s-A6s	Fold or call IP
SB / BB	SB 3B or fold; BB defend	BB: call vs all; 3B A5s-A2s vs BTN	—

Postflop plan by board texture:



- These hands win big when they make a **flush (6.5% by the river with two of your suit)** or a wheel, and the ace makes them the **nut flush**.
- **Top pair weak kicker (A-9-3 with A4s)**: check-call; don't build a big pot.
- **Nut flush draw**: play aggressively (semi-bluff raise or bet): ~46% vs top pair plus fold equity (Section 6).
- **Backdoor nut flush draw + gutshot**: good c-bet / float candidate; give up without picking up a draw on the turn.

8.7 Suited connectors and gappers: 54s-JTs, 64s-J9s

4 combos each · 87s ~48% vs random, ~31-38% vs tight ranges

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG	Open T9s, 98s (87s at loose tables); fold below	Vs open: fold (call IP only deep vs a fish)	Fold to 3B
HJ / CO	Open 65s+ (HJ) / 54s+ (CO)	Call IP vs late opens; 3B bluff some (76s, 98s) vs CO from BTN	Fold to 3B OOP; call IP when 100bb+ deep
BTN	Open all, plus 1-gappers	Call vs opens IP	Call 3B IP sometimes
SB / BB	SB: open; BB: defend most	BB call vs all late opens; SB 3B some vs BTN	—

Postflop plan by board texture:

- 87s flops: an OESD **9.7%**, a flush draw **10.9%**, two pair+ ~**5.6%** of the time; ~**37.6%** of flops give it nothing at all.
- **Strong draws (OESD+FD, pair + draw)**: play fast: raise/bet, plan to get all-in (55%+ equity vs an overpair).
- **Weak draw (gutshot only)**: check-call one small bet IP if the price is right, else fold.
- **Two pair+ / straight / flush**: bet big into wet boards; these hands get paid by overpairs at micros.

8.8 Offsuit trash: K9o-K2o, Q8o, J7o, T7o, 94o, 72o ...

Most of the deck · 72o 34.6% vs random, 22-27% vs any real range

Position	Unopened	Facing an open	Facing a 3-bet / 4-bet
UTG / HJ / CO	Fold	Fold	Fold
BTN	Open K8o+, Q9o+, J8o+, T8o+, 98o, 87o; fold the rest	Fold vs opens	Fold
SB	Open K9o+, Q9o+, J9o+, T9o only vs a tight BB	Fold	Fold
BB	Defend vs a min-raise BTN steal with K-x/Q-x/J-x connected offsuit hands; fold the worst	Fold vs EP opens	—

Postflop plan by board texture:

- Main mistake: calling with them pre and then making top pair with a bad kicker. **Fold preflop is the default.**
- When you do defend the BB with K7o etc., play check-call / check-fold; only bluff with real draws.



9. Position-by-position strategy pages

Each page shows an approximate **raise-first-in (RFI)** grid and a **3-bet** grid. Percentages are computed from the exact combos in the grid. X = in range; in 3-bet grids X = value 3-bet and o = light/bluff 3-bet. *These are approximate guidelines, not solver output.*

UTG: open 18.3% of hands (242 combos)

Five players behind you. Open tight, 2.5bb. Facing a 3-bet: 4-bet QQ+/AK; you will be OOP vs most 3-bets, so call only JJ-TT and AQs (and KQs vs loose 3-bettors) and fold the rest. This grid is about 18%, slightly wider than the 15–17% in the base guide; drop QJo, ATo, and 98s to tighten it.

UTG RFI

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	X	X	X	X	X	X	X	X	X
K	X	X	X	X	X	.	.	.	.	.	.	.	.
Q	X	X	X	X	X	.	.	.	.	.	.	.	.
J	X	X	X	X	X	.	.	.	.	.	.	.	.
T	X	.	.	.	X	X	.	.	.	.	.	.	.
9	.	.	.	.	.	X	X	.	.	.	.	.	.
8	.	.	.	.	.	.	X	.	.	.	.	.	.
7	.	.	.	.	.	.	.	X	.	.	.	.	.
6	.	.	.	.	.	.	.	.	X	.	.	.	.
5	.	.	.	.	.	.	.	.	.	X	.	.	.
4	.	.	.	.	.	.	.	.	.	.	X	.	.
3	.	.	.	.	.	.	.	.	.	.	.	X	.
2	.	.	.	.	.	.	.	.	.	.	.	.	X

3-bet: HJ vs UTG open · value 2.6% + light 0.9% = 3.5%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	.	.	.	.	.	.	.	o	o	.	.
K	X	X	o	.	.	.	.	.	.	.	.	.	.
Q	.	.	X	.	.	.	.	.	.	.	.	.	.
J	.	.	.	.	.	.	.	.	.	.	.	.	.
T	.	.	.	.	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.

HJ: open 23.7% of hands (314 combos)

Four players behind. Open 2.5bb. Facing a 3-bet: 4-bet QQ+/AK, call JJ-99, AQs, AJs, KQs; fold offsuit broadways.

HJ RFI

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	X	X	X	X	X	X	X	X	X
K	X	X	X	X	X	X	X	.	.	.	.	.	.
Q	X	X	X	X	X	X	.	.	.	.	.	.	.
J	X	X	X	X	X	X	.	.	.	.	.	.	.
T	X	X	X	X	X	X	X	.	.	.	.	.	.
9	.	.	.	.	.	X	X	X	.	.	.	.	.
8	.	.	.	.	.	.	X	X	.	.	.	.	.
7	.	.	.	.	.	.	.	X	X	.	.	.	.
6	.	.	.	.	.	.	.	.	X	X	.	.	.
5	.	.	.	.	.	.	.	.	.	X	.	.	.
4	.	.	.	.	.	.	.	.	.	.	X	.	.
3	.	.	.	.	.	.	.	.	.	.	.	X	.
2	.	.	.	.	.	.	.	.	.	.	.	.	X

3-bet: CO vs UTG/HJ open · value 3.0% + light 1.2% = 4.2%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	o	.	.	.	.	.	.	o	o	.	.
K	X	X	.	o	.	.	.	.	.	.	.	.	.
Q	.	.	X	.	.	.	.	.	.	.	.	.	.
J	.	.	.	X	.	.	.	.	.	.	.	.	.
T	.	.	.	.	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	.	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.

CO: open 33.3% of hands (442 combos)

Only BTN and blinds behind; you'll often be IP. Steal more vs tight blinds. Facing a BTN 3-bet (wide): call TT-66, AQ, AJs, KQs, suited connectors; 4-bet QQ+/AK and some A5s.

**CO RFI**

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	X	X	X	X	X	X	X	X	X
K	X	X	X	X	X	X	X	X	X	X	.	.	.
Q	X	X	X	X	X	X	X	.	.	.	.	.	.
J	X	X	X	X	X	X	X	.	.	.	.	.	.
T	X	X	X	X	X	X	X	.	.	.	.	.	.
9	X	X	X	X	X	X	X	X	X	.	.	.	.
8	X	.	.	.	.	.	X	X	X	.	.	.	.
7	.	.	.	.	.	.	.	X	X	X	.	.	.
6	.	.	.	.	.	.	.	.	X	X	X	.	.
5	X	.	.	.	.	.	.	.	.	X	X	.	.
4	.	.	.	.	.	.	.	.	.	.	X	.	.
3	.	.	.	.	.	.	.	.	.	.	.	X	.
2	.	.	.	.	.	.	.	.	.	.	.	.	X

3-bet: BTN vs CO open · value 5.0% + light 3.3% = 8.3%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	.	.	.	.	.	.	0	0	0	0
K	X	X	X	.	0	0	.	.	.	.	.	.	.
Q	X	.	X	0	.	.	.	.	.	.	.	.	.
J	.	.	.	X	0	.	.	.	.	.	.	.	.
T	.	.	.	.	X	0	.	.	.	.	.	.	.
9	.	.	.	.	.	.	0	.	.	.	.	.	.
8	.	.	.	.	.	.	.	.	.	.	.	.	.
7	.	.	.	.	.	.	.	.	0	.	.	.	.
6	.	.	.	.	.	.	.	.	.	.	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.
4	.	.	.	.	.	.	.	.	.	.	.	.	.
3	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.

BTN: open 47.2% of hands (626 combos)

Best seat: guaranteed position. Open widest, 2-2.5bb. Facing a blind 3-bet: call wide IP (pairs, suited broadways, suited connectors), 4-bet QQ+/AK, plus A5s bluffs vs aggressive blinds.

BTN RFI

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	X	X	X	X	X	X	X	X	X
K	X	X	X	X	X	X	X	X	X	X	X	X	X
Q	X	X	X	X	X	X	X	X	X	X	X	.	.
J	X	X	X	X	X	X	X	X	X	.	.	.	.
T	X	X	X	X	X	X	X	X	X	.	.	.	.
9	X	X	X	X	X	X	X	X	X	X	.	.	.
8	X	X	.	X	X	X	X	X	X	X	.	.	.
7	X	.	.	.	.	.	X	X	X	X	X	.	.
6	X	.	.	.	.	.	.	X	X	X	X	.	.
5	X	.	.	.	.	.	.	.	X	X	X	.	.
4	X	.	.	.	.	.	.	.	.	X	X	.	.
3	X	.	.	.	.	.	.	.	.	.	X	.	.
2	X	.	.	.	.	.	.	.	.	.	.	X	.

3-bet: BB vs BTN open · value 5.3% + light 4.8% = 10.1%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	.	.	.	.	.	0	0	0	0
K	X	X	X	.	.	0	0	.	.	.	.	.	.
Q	X	.	X	.	.	0	.	.	.	.	.	.	.
J	.	0	.	X	0	.	.	.	.	.	.	.	.
T	.	.	.	.	X	0	.	.	.	.	.	.	.
9	.	.	.	.	.	.	0	.	.	.	.	.	.
8	.	.	.	.	.	.	.	0	.	.	.	.	.
7	.	.	.	.	.	.	.	.	0	.	.	.	.
6	.	.	.	.	.	.	.	.	.	0	.	.	.
5	.	.	.	.	.	.	.	.	.	.	0	.	.
4	.	.	.	.	.	.	.	.	.	.	.	0	.
3	.	.	.	.	.	.	.	.	.	.	.	.	0
2	.	.	.	.	.	.	.	.	.	.	.	.	.

SB: open 40.0% of hands (530 combos)

Raise-or-fold, 3bb (or 3.5bb vs loose BBs). You'll be OOP the whole hand vs the BB, so don't open hands that play badly OOP.

SB RFI

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	X	X	X	X	X	X	X	X	X
K	X	X	X	X	X	X	X	X	X	X	X	X	.
Q	X	X	X	X	X	X	X	X	X	X	.	.	.
J	X	X	X	X	X	X	X	X	.	.	.	.	.
T	X	X	X	X	X	X	X	X	.	.	.	.	.
9	X	X	X	X	X	X	X	X	.	.	.	.	.
8	X	.	.	.	.	.	X	X	X	.	.	.	.
7	X	.	.	.	.	.	.	X	X	X	.	.	.
6	X	.	.	.	.	.	.	.	X	X	X	.	.
5	X	.	.	.	.	.	.	.	.	X	X	.	.
4	X	.	.	.	.	.	.	.	.	.	X	.	.
3	X	.	.	.	.	.	.	.	.	.	.	X	.
2	X	.	.	.	.	.	.	.	.	.	.	.	X

3-bet: SB vs BTN open (3-bet or fold) · value 5.7% + light 8.7% = 14.5%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	.	0	0	0	0	0	0	0	0
K	X	X	X	.	0	0	.	.	.	.	.	.	.
Q	X	0	X	0	0	.	.	.	.	.	.	.	.
J	0	0	.	X	0	.	.	.	.	.	.	.	.
T	0	.	.	.	X	0	.	.	.	.	.	.	.
9	.	.	.	.	.	X	0	.	.	.	.	.	.
8	.	.	.	.	.	.	.	0	.	.	.	.	.
7	.	.	.	.	.	.	.	.	0	.	.	.	.
6	.	.	.	.	.	.	.	.	.	0	.	.	.
5	.	.	.	.	.	.	.	.	.	.	0	.	.
4	.	.	.	.	.	.	.	.	.	.	.	0	.
3	.	.	.	.	.	.	.	.	.	.	.	.	0
2	.	.	.	.	.	.	.	.	.	.	.	.	.

**BB: defend and 3-bet**

The BB closes the action and already has 1bb in. Vs a 2.5bb BTN open you call 1.5bb to win 5.5bb → you need only **21.4%** equity, so defend wide (~40–50% vs BTN, ~20–25% vs UTG). Vs a 3bb SB open: 3-bet more and call a bit less wide.

BB 3-bet vs SB open · value 8.1% + light 7.5%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	X	X	X	.	.	.	.	0	0	0	0
K	X	X	X	X	.	0	0	0	0	.	.	.	.
Q	X	X	X	.	.	0	.	.	.	.	.	.	.
J	X	0	0	X	.	0	.	.	.	.	.	.	.
T	0	.	.	.	X	.	0	.	.	.	.	.	.
9	.	.	.	.	.	X	.	0	.	.	.	.	.
8	.	.	.	.	.	.	.	.	0	.	.	.	.
7	.	.	.	.	.	.	.	.	.	0	.	.	.
6	.	.	.	.	.	.	.	.	.	.	0	.	.
5	.	.	.	.	.	.	.	.	.	.	.	0	.
4	.	.	.	.	.	.	.	.	.	.	.	.	0
3	.	.	.	.	.	.	.	.	.	.	.	.	.
2	.	.	.	.	.	.	.	.	.	.	.	.	.

HJ 3-bet vs UTG (tight, linear) · 3.5%

	A	K	Q	J	T	9	8	7	6	5	4	3	2
A	X	X	.	.	.	.	.	.	.	0	0	.	.
K	X	X	0	.	.	.	.	.	.	.	.	.	.
Q	.	.	X	.	.	.	.	.	.	.	.	.	.
J	.	.	.	X	.	.	.	.	.	.	.	.	.
T	.	.	.	.	X	.	.	.	.	.	.	.	.
9	.	.	.	.	.	X	.	.	.	.	.	.	.
8	.	.	.	.	.	.	X	.	.	.	.	.	.
7	.	.	.	.	.	.	.	X	.	.	.	.	.
6	.	.	.	.	.	.	.	.	X	.	.	.	.
5	.	.	.	.	.	.	.	.	.	X	.	.	.
4	.	.	.	.	.	.	.	.	.	.	X	.	.
3	.	.	.	.	.	.	.	.	.	.	.	X	.
2	.	.	.	.	.	.	.	.	.	.	.	.	X

10. One-page number sheet

Number	Value	Use it for
Starting hands / hand types	1,326 / 169	Combo counting
Combos: pair / suited / offsuit	6 / 4 / 12	Hand reading
Flop a set with a pair	11.8% (7.5 : 1)	Set mining: need 15–20× effective stack
Flop a flush draw with suited cards	10.9%	Suited hands' extra value
Flop a made flush	0.8%	Don't overvalue suitedness
Unpaired hand flops a pair+	32.4%	Expect to miss two-thirds of flops
Overcard to JJ / QQ / KK	57.0% / 41.4% / 22.6%	Mid-pair pot control
Pair vs two overcards	~53–57%	Coin flip
Dominated hand (AQ vs AK)	~26%	Fold dominated offsuit hands to tight 3-bets
FD flop→river / turn→river	35.0% / 19.6%	Draw pricing
OESD flop→river / turn→river	31.5% / 17.4%	Draw pricing
Combo draw (15 outs) vs overpair	~56%	Get it in
Bluff break-even: ½ pot / ⅔ / pot	33% / 40% / 50%	Bluffing
Call needs: ½ pot / ⅔ / pot	25% / 28.6% / 33%	Calling

Equities and odds were computed (exact enumeration or 200k+ Monte Carlo trials). Ranges and charts are approximate guidelines. This guide is for study away from the table, not for real-time use during play.



A brighter game ahead
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ABOUT FLAWLESS POKER

Flawless Poker publishes study guides for online No-Limit Hold'em players: cash games, sit-and-gos and multi-table tournaments. Every guide pairs practical ranges and plans with numbers computed from equity, ICM and simulation models, so you can understand why a play works, not just what to do.

Play responsibly. Real-money poker is for adults only: 18+ (21+ where required by local law). Check that online poker is legal where you live. Play within your means, only with money you can afford to lose, and never chase losses. Set time and deposit limits before you play.

If gambling stops being fun, help is available. In the US, call or text 1-800-GAMBLER (1-800-426-2537). Elsewhere, contact your local problem-gambling helpline.

Study material, not a live aid. These guides are for study away from the table, not for real-time use during play. Charts and ranges are approximate guidelines, not solver output.