Poker cheat sheet

No Limit Texas Hold'em. Every probability here is computed, not copied. For study and review.

Hand rankings

Hand (best first)	Example	Rule
1. Royal flush	As Ks Qs Js Ts	A-K-Q-J-T, all one suit. The best hand.
2. Straight flush	9h 8h 7h 6h 5h	Five in a row, all one suit. Higher top card wins.
3. Four of a kind	Qc Qd Qh Qs 7d	Four cards of one rank. Then the kicker.
4. Full house	Jc Jd Js 4h 4s	Three of a kind plus a pair. The three decide first.
5. Flush	Ad Jd 8d 6d 2d	Five of one suit. Compare the highest card, then the next.
6. Straight	Tc 9d 8s 7h 6c	Five in a row. A-2-3-4-5 is the lowest straight.
7. Three of a kind	7s 7h 7d Kc 2s	Three of one rank. Then two kickers.
8. Two pair	Ks Kd 5c 5h 9s	Higher pair first, then lower pair, then kicker.
9. One pair	Ah Ac Qd 8s 3c	Two of one rank. Then three kickers.
10. High card	Ks Jd 9c 6h 3s	Nothing made. Compare cards from the top down.

Ties

- Only the best five cards count. In Hold'em that is the best five of your two cards plus the five on the board.
- Same hand type: compare the cards that make the hand, then the kickers, from the highest down.
- Suits never break a tie. Equal five-card hands split the pot.
- If the board is your best five cards, every player still in the hand ties.

How often each hand comes

5-card: the chance a 5-card hand dealt from a full deck is that hand (2,598,960 hands).
7-card: the chance your best 5 of 7 cards (2 hole + 5 board) is that hand by the river (133,784,560 sets).

Hand	5-card hands	5-card %	7-card (Hold'em)	7-card %
Royal flush	4	0.0002%	4,324	0.0032%
Straight flush	36	0.0014%	37,260	0.028%
Four of a kind	624	0.024%	224,848	0.168%
Full house	3,744	0.144%	3,473,184	2.60%
Flush	5,108	0.197%	4,047,644	3.03%
Straight	10,200	0.392%	6,180,020	4.62%
Three of a kind	54,912	2.11%	6,461,620	4.83%
Two pair	123,552	4.75%	31,433,400	23.5%
One pair	1,098,240	42.3%	58,627,800	43.8%
High card	1,302,540	50.1%	23,294,460	17.4%

In Hold'em you see 7 cards, so made hands come far more often than in 5-card draw.
You end with a pair or better 82.6% of the time by the river, so one pair is rarely strong.

Probabilities: exact counts by combinatorics, checked against the totals C(52,5) and C(52,7).

Poker cheat sheet

No Limit Texas Hold'em. Every probability here is computed, not copied. For study and review.

Starting hands

Open-raise charts, 6-max cash, 100bb, first in. Dark = raise. Part filled = mixed: raise that share of the time.

UTG opens (tightest)

AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	92s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s	84s	83s	82s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s	74s	73s	72s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s	64s	63s	62s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55	54s	53s	52s
A4o	K4o	Q4o	J4o	T4o	94o	84o	74o	64o	54o	44	43s	42s
A3o	K3o	Q3o	J3o	T3o	93o	83o	73o	63o	53o	43o	33	32s
A2o	K2o	Q2o	J2o	T2o	92o	82o	72o	62o	52o	42o	32o	22

BTN opens (widest)

AA	AKs	AQs	AJs	ATs	A9s	A8s	A7s	A6s	A5s	A4s	A3s	A2s
AKo	KK	KQs	KJs	KTs	K9s	K8s	K7s	K6s	K5s	K4s	K3s	K2s
AQo	KQo	QQ	QJs	QTs	Q9s	Q8s	Q7s	Q6s	Q5s	Q4s	Q3s	Q2s
AJo	KJo	QJo	JJ	JTs	J9s	J8s	J7s	J6s	J5s	J4s	J3s	J2s
ATo	KTo	QTo	JTo	TT	T9s	T8s	T7s	T6s	T5s	T4s	T3s	T2s
A9o	K9o	Q9o	J9o	T9o	99	98s	97s	96s	95s	94s	93s	92s
A8o	K8o	Q8o	J8o	T8o	98o	88	87s	86s	85s	84s	83s	82s
A7o	K7o	Q7o	J7o	T7o	97o	87o	77	76s	75s	74s	73s	72s
A6o	K6o	Q6o	J6o	T6o	96o	86o	76o	66	65s	64s	63s	62s
A5o	K5o	Q5o	J5o	T5o	95o	85o	75o	65o	55	54s	53s	52s
A4o	K4o	Q4o	J4o	T4o	94o	84o	74o	64o	54o	44	43s	42s
A3o	K3o	Q3o	J3o	T3o	93o	83o	73o	63o	53o	43o	33	32s
A2o	K2o	Q2o	J2o	T2o	92o	82o	72o	62o	52o	42o	32o	22

10 strongest starting hands: AA, KK, QQ, JJ, AKs, TT, AQs, AJs, KQs, AKo (Sklansky-Malmuth groups 1 and 2).

Hand-tuned approximations of solver output, not exact solves. All 13 charts: jarvispoker.com/preflop

Outs and the rule of 2 and 4

Outs = cards that complete your hand. Rule of 4 on the flop (two cards to come), rule of 2 on the turn.

Draw	Outs	Flop to river	Rule of 4	Turn to river	Rule of 2
Pocket pair to a set	2	8.42%	8%	4.35%	4%
One overcard to a pair	3	12.5%	12%	6.52%	6%
Gutshot straight draw	4	16.5%	16%	8.70%	8%
Two pair to a full house	4	16.5%	16%	8.70%	8%
Two overcards to a pair	6	24.1%	24%	13.0%	12%
Open-ended straight draw	8	31.5%	32%	17.4%	16%
Flush draw	9	35.0%	36%	19.6%	18%
Flush draw + gutshot	12	45.0%	48%	26.1%	24%
Flush draw + open-ended	15	54.1%	60%	32.6%	30%

Exact values assume all outs are live. The rule of 4 runs high on big draws: 15 outs is 54.1%, not 60%.

Pot odds

Equity needed to call = call / (pot after your call).

Bet 25% pot	16.7% equity
Bet 33% pot	19.9% equity
Bet 50% pot	25.0% equity
Bet 66% pot	28.4% equity
Bet 75% pot	30.0% equity
Bet 100% pot	33.3% equity
Bet 1.5x pot	37.5% equity
Bet 2x pot	40.0% equity

Calculators: jarvispoker.com/pot-odds and /equity

Positions

6-max, in order of action preflop:

UTG (under the gun)
First to act preflop. Open the tightest range.

HJ (hijack)
Two seats before the button. A little wider than UTG.

CO (cutoff)
One seat before the button. Wide opens, often steals.

BTN (button)
Acts last after the flop. The widest open range.

SB (small blind)
Acts first after the flop. Plays from the worst position.

BB (big blind)
Closes the action preflop. Defends wide, gets a good price.