



FLAWLESS POKER GUIDE SERIES

The Flawless Poker Odds Bible

Every number computed: dealt odds, multiway equity for all 169 hands, pairs, suited and connected hands, 60 exact head-to-head matchups, outs, pot odds, MDF, implied odds, range equities, board textures and long-run frequencies

EDITION · OCTOBER 2026 ·

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Reference material, not a live aid. For study **away from the table**, not for real-time use during play. Only play with money you can afford to lose, and only where it's legal for your age and location.

Tags. [Exact] = complete enumeration or closed-form combinatorics. **[MC n]** = Monte Carlo simulation with n trials per entry (typical error ± 0.1 – 0.2 points at $n = 300,000$; ± 0.3 at $n = 60,000$). All figures from our Python scripts (eval7 hand evaluator).

How to read the tables

- **Equity** = share of the pot won on average if all cards are dealt out (ties count as a split). **1 in X** = average number of tries per occurrence.
- **Hand notation:** AKs = suited, AKo = offsuit, 77 = pocket pair. Specific suits are used for exact matchups (noted in the table); suit interactions change results by up to ~1–2 points.
- **"Random opponents"** are dealt independent random hands; nobody folds.
- Unless noted, odds assume you see **all remaining cards** (no betting).

1. Dealt odds by hand type [Exact]

Hand type	Combos	Chance	1 in X
Any specific pair (e.g. AA)	6	0.45%	221
Any specific suited hand (e.g. AKs)	4	0.30%	332
Any specific offsuit hand (e.g. AKo)	12	0.90%	110
Specific hand, suited or not (e.g. AK)	16	1.21%	82.9
Any pocket pair	78	5.88%	17.0
Any suited hand	312	23.53%	4.2
Any offsuit unpaired hand	936	70.59%	1.4
AA or KK	12	0.90%	110
QQ+ or AK	34	2.56%	39.0
Any ace	198	14.93%	6.7
Two Broadway cards (T+), unpaired	160	12.07%	8.3
Suited connectors (32s–AKs, 13 types incl. A2s)	52	3.92%	25.5
Pocket pair 22–66	30	2.26%	44.2

2. All 169 hands: dealt odds and equity vs 1–9 random opponents [MC 300,000]

Each row's equity columns come from one simulation of 300,000 deals per hand (opponent counts nested). Fair share with k opponents is $100 \div (k+1)\%$: 50, 33.3, 25, 20, 16.7, 14.3, 12.5, 11.1, 10.

Pocket pairs

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
AA	6	0.452%	221	85.1	73.4	63.8	55.9	49.3	43.6	38.9	34.8	31.2
KK	6	0.452%	221	82.5	68.9	58.3	49.9	43.0	37.6	33.1	29.3	26.2
QQ	6	0.452%	221	79.9	64.8	53.5	44.7	37.9	32.6	28.3	24.9	22.3
JJ	6	0.452%	221	77.6	61.2	49.1	40.1	33.4	28.4	24.5	21.6	19.2
TT	6	0.452%	221	74.9	57.5	45.1	36.3	29.9	25.1	21.6	19.1	17.1
99	6	0.452%	221	72.2	53.8	41.3	32.7	26.6	22.5	19.4	17.2	15.6



Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
88	6	0.452%	221	69.1	49.9	37.6	29.5	24.0	20.2	17.6	15.7	14.4
77	6	0.452%	221	66.2	46.4	34.4	26.8	21.9	18.6	16.4	14.8	13.7
66	6	0.452%	221	63.2	43.1	31.5	24.4	20.0	17.2	15.3	14.0	13.0
55	6	0.452%	221	60.2	39.9	28.7	22.2	18.4	15.9	14.3	13.1	12.2
44	6	0.452%	221	57.0	36.7	26.3	20.5	17.2	15.2	13.8	12.8	12.1
33	6	0.452%	221	53.8	33.6	24.0	19.1	16.3	14.7	13.5	12.7	12.1
22	6	0.452%	221	50.2	30.5	21.9	17.7	15.4	14.1	13.1	12.4	11.8

Ax suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
AKs	4	0.302%	332	67.0	50.8	41.5	35.4	31.1	27.7	25.0	22.7	20.7
AQs	4	0.302%	332	66.2	49.5	39.9	33.7	29.3	26.0	23.3	21.1	19.2
AJs	4	0.302%	332	65.4	48.2	38.4	32.2	27.9	24.6	22.1	19.9	18.2
ATs	4	0.302%	332	64.5	47.0	37.1	30.8	26.6	23.4	20.9	18.9	17.3
A9s	4	0.302%	332	62.8	44.6	34.6	28.4	24.2	21.1	18.8	17.0	15.5
A8s	4	0.302%	332	62.0	43.5	33.5	27.3	23.2	20.2	17.9	16.2	14.8
A7s	4	0.302%	332	60.9	42.4	32.4	26.4	22.5	19.6	17.4	15.7	14.3
A6s	4	0.302%	332	59.9	41.0	31.1	25.3	21.5	18.7	16.6	15.1	13.8
A5s	4	0.302%	332	59.9	41.4	31.8	26.0	22.2	19.5	17.5	15.8	14.5
A4s	4	0.302%	332	59.0	40.5	31.0	25.4	21.6	19.0	17.0	15.4	14.1
A3s	4	0.302%	332	58.2	39.6	30.3	24.7	21.1	18.6	16.7	15.2	13.9
A2s	4	0.302%	332	57.3	38.7	29.4	24.0	20.5	18.1	16.2	14.7	13.5

Ax offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
AKo	12	0.905%	110	65.2	48.0	38.4	32.2	27.7	24.2	21.4	19.1	17.0
AQo	12	0.905%	110	64.5	46.8	36.8	30.4	25.8	22.4	19.6	17.4	15.5
AJo	12	0.905%	110	63.6	45.5	35.4	28.9	24.3	20.9	18.2	16.1	14.3
ATo	12	0.905%	110	62.9	44.4	34.0	27.5	23.0	19.6	17.1	15.0	13.3
A9o	12	0.905%	110	60.9	41.7	31.0	24.6	20.3	17.1	14.7	12.7	11.2
A8o	12	0.905%	110	59.9	40.4	29.9	23.5	19.2	16.2	13.9	12.1	10.6
A7o	12	0.905%	110	58.9	39.2	28.7	22.5	18.3	15.3	13.1	11.3	9.9
A6o	12	0.905%	110	57.6	37.9	27.5	21.3	17.4	14.6	12.4	10.8	9.6
A5o	12	0.905%	110	57.7	38.3	28.1	22.1	18.1	15.3	13.1	11.4	10.1
A4o	12	0.905%	110	56.7	37.2	27.2	21.3	17.5	14.8	12.7	11.2	9.9
A3o	12	0.905%	110	55.9	36.3	26.4	20.6	16.9	14.3	12.3	10.8	9.6
A2o	12	0.905%	110	54.9	35.2	25.4	19.9	16.3	13.7	11.8	10.4	9.2

Kx suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
KQs	4	0.302%	332	63.3	47.0	38.2	32.5	28.4	25.1	22.4	20.3	18.5
KJs	4	0.302%	332	62.6	45.8	36.8	31.0	26.9	23.8	21.3	19.3	17.6



Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
KTs	4	0.302%	332	61.8	44.7	35.6	29.8	25.7	22.7	20.3	18.4	16.8
K9s	4	0.302%	332	60.0	42.4	33.0	27.2	23.2	20.4	18.2	16.4	14.9
K8s	4	0.302%	332	58.3	40.2	30.9	25.2	21.4	18.6	16.5	14.9	13.5
K7s	4	0.302%	332	57.5	39.2	29.8	24.2	20.5	17.8	15.8	14.2	13.0
K6s	4	0.302%	332	56.6	38.2	29.0	23.6	19.9	17.4	15.4	14.0	12.7
K5s	4	0.302%	332	55.8	37.4	28.3	23.0	19.5	17.0	15.1	13.6	12.5
K4s	4	0.302%	332	55.1	36.6	27.6	22.4	19.1	16.7	14.9	13.5	12.4
K3s	4	0.302%	332	54.1	35.8	27.0	21.9	18.7	16.4	14.7	13.3	12.2
K2s	4	0.302%	332	53.3	34.9	26.3	21.4	18.3	16.1	14.4	13.1	12.1

Kx offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
KQo	12	0.905%	110	61.4	44.2	35.0	29.2	25.0	21.7	19.0	16.8	15.0
KJo	12	0.905%	110	60.7	43.1	33.7	27.7	23.5	20.2	17.6	15.5	13.8
KTo	12	0.905%	110	59.6	41.7	32.3	26.3	22.2	19.0	16.5	14.6	13.0
K9o	12	0.905%	110	57.9	39.2	29.5	23.5	19.4	16.4	14.0	12.2	10.8
K8o	12	0.905%	110	56.1	37.1	27.3	21.5	17.5	14.6	12.5	10.8	9.5
K7o	12	0.905%	110	55.1	35.9	26.1	20.4	16.5	13.8	11.7	10.1	8.9
K6o	12	0.905%	110	54.3	35.0	25.2	19.6	15.9	13.2	11.2	9.7	8.5
K5o	12	0.905%	110	53.2	33.9	24.4	18.8	15.3	12.7	10.8	9.4	8.2
K4o	12	0.905%	110	52.7	33.2	23.7	18.3	14.8	12.3	10.5	9.2	8.0
K3o	12	0.905%	110	51.3	32.0	22.7	17.5	14.2	11.9	10.2	8.9	7.8
K2o	12	0.905%	110	50.4	31.2	22.1	17.1	13.9	11.6	10.0	8.7	7.6

Qx suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
QJs	4	0.302%	332	60.3	44.2	35.7	30.2	26.3	23.2	20.9	18.9	17.3
QTs	4	0.302%	332	59.5	43.1	34.6	29.1	25.2	22.3	19.9	18.1	16.6
Q9s	4	0.302%	332	57.7	40.7	31.9	26.5	22.7	19.9	17.7	15.9	14.6
Q8s	4	0.302%	332	56.1	38.6	29.8	24.4	20.8	18.1	16.1	14.5	13.2
Q7s	4	0.302%	332	54.3	36.5	27.7	22.5	19.0	16.5	14.7	13.2	12.1
Q6s	4	0.302%	332	53.7	35.8	27.1	22.0	18.6	16.1	14.3	12.9	11.8
Q5s	4	0.302%	332	52.9	35.0	26.3	21.3	18.1	15.8	14.1	12.7	11.6
Q4s	4	0.302%	332	51.9	34.0	25.6	20.7	17.6	15.3	13.6	12.3	11.3
Q3s	4	0.302%	332	50.9	33.2	24.9	20.1	17.1	14.9	13.3	12.1	11.1
Q2s	4	0.302%	332	50.2	32.5	24.3	19.7	16.8	14.8	13.2	12.0	11.1

Qx offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
QJo	12	0.905%	110	58.1	41.3	32.5	26.8	22.8	19.7	17.2	15.2	13.6
QTo	12	0.905%	110	57.2	40.1	31.2	25.7	21.6	18.7	16.3	14.4	12.9
Q9o	12	0.905%	110	55.4	37.5	28.4	22.8	18.9	16.0	13.8	12.1	10.7



Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
Q8o	12	0.905%	110	53.6	35.3	26.1	20.6	16.9	14.1	12.1	10.6	9.3
Q7o	12	0.905%	110	51.8	33.0	23.9	18.6	15.0	12.4	10.6	9.2	8.0
Q6o	12	0.905%	110	51.0	32.2	23.1	17.9	14.4	12.0	10.2	8.8	7.7
Q5o	12	0.905%	110	50.2	31.4	22.5	17.3	13.9	11.6	9.8	8.5	7.4
Q4o	12	0.905%	110	49.1	30.4	21.6	16.6	13.4	11.1	9.4	8.1	7.1
Q3o	12	0.905%	110	48.3	29.5	20.8	16.0	12.8	10.7	9.1	7.9	6.9
Q2o	12	0.905%	110	47.3	28.7	20.1	15.4	12.5	10.4	8.8	7.7	6.8

Jx suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
JTs	4	0.302%	332	57.5	41.9	33.8	28.5	24.8	21.9	19.7	17.9	16.5
J9s	4	0.302%	332	55.6	39.4	31.3	26.1	22.3	19.6	17.5	15.9	14.6
J8s	4	0.302%	332	54.0	37.3	29.0	23.9	20.4	17.9	16.0	14.5	13.3
J7s	4	0.302%	332	52.4	35.5	27.2	22.2	18.9	16.5	14.6	13.2	12.1
J6s	4	0.302%	332	50.7	33.3	25.2	20.4	17.3	15.0	13.3	12.0	11.0
J5s	4	0.302%	332	50.0	32.8	24.7	20.0	17.0	14.8	13.1	11.8	10.8
J4s	4	0.302%	332	49.0	31.9	23.9	19.4	16.4	14.3	12.8	11.5	10.5
J3s	4	0.302%	332	48.1	31.1	23.3	18.9	16.0	14.1	12.5	11.4	10.4
J2s	4	0.302%	332	47.4	30.4	22.8	18.5	15.7	13.7	12.3	11.1	10.2

Jx offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
JTo	12	0.905%	110	55.2	39.0	30.7	25.3	21.5	18.6	16.3	14.5	13.0
J9o	12	0.905%	110	53.3	36.4	27.9	22.5	18.8	15.9	13.8	12.2	10.9
J8o	12	0.905%	110	51.5	34.1	25.6	20.3	16.7	14.1	12.1	10.6	9.4
J7o	12	0.905%	110	49.5	31.8	23.3	18.2	14.8	12.4	10.6	9.2	8.1
J6o	12	0.905%	110	47.9	29.8	21.4	16.5	13.3	11.0	9.3	8.0	7.1
J5o	12	0.905%	110	47.3	29.2	20.8	16.0	12.8	10.6	9.0	7.8	6.8
J4o	12	0.905%	110	46.3	28.3	20.0	15.4	12.3	10.3	8.7	7.5	6.6
J3o	12	0.905%	110	45.2	27.3	19.2	14.7	11.8	9.8	8.3	7.2	6.3
J2o	12	0.905%	110	44.3	26.6	18.6	14.2	11.4	9.5	8.1	7.1	6.2

Tx suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
T9s	4	0.302%	332	54.1	38.7	30.9	25.9	22.3	19.7	17.6	16.0	14.8
T8s	4	0.302%	332	52.2	36.6	28.8	24.0	20.6	18.1	16.1	14.7	13.5
T7s	4	0.302%	332	50.7	34.7	27.0	22.2	18.9	16.6	14.8	13.4	12.3
T6s	4	0.302%	332	49.0	32.6	25.0	20.4	17.3	15.1	13.4	12.1	11.1
T5s	4	0.302%	332	47.4	31.0	23.4	18.9	16.1	14.0	12.5	11.3	10.4
T4s	4	0.302%	332	46.7	30.3	22.8	18.5	15.7	13.7	12.2	11.0	10.1
T3s	4	0.302%	332	45.6	29.4	22.1	17.9	15.2	13.3	11.9	10.8	9.9
T2s	4	0.302%	332	44.9	28.6	21.5	17.5	14.8	13.0	11.6	10.6	9.7

**Tx offsuit**

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
T9o	12	0.905%	110	51.5	35.6	27.6	22.5	18.9	16.2	14.1	12.6	11.3
T8o	12	0.905%	110	49.7	33.5	25.4	20.4	16.9	14.4	12.5	11.1	9.9
T7o	12	0.905%	110	47.8	31.1	23.2	18.3	15.0	12.7	10.9	9.6	8.6
T6o	12	0.905%	110	46.1	29.2	21.2	16.6	13.4	11.2	9.6	8.4	7.4
T5o	12	0.905%	110	44.3	27.1	19.3	14.8	11.9	9.8	8.4	7.2	6.4
T4o	12	0.905%	110	43.5	26.5	18.8	14.4	11.5	9.6	8.1	7.0	6.2
T3o	12	0.905%	110	42.7	25.7	18.1	13.8	11.1	9.2	7.8	6.8	6.0
T2o	12	0.905%	110	41.6	24.7	17.4	13.3	10.7	8.9	7.6	6.6	5.8

9x suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
98s	4	0.302%	332	50.9	36.1	28.6	23.7	20.3	17.9	16.0	14.6	13.4
97s	4	0.302%	332	49.3	34.2	26.7	22.0	18.9	16.6	14.8	13.5	12.5
96s	4	0.302%	332	47.5	32.2	24.8	20.4	17.4	15.3	13.7	12.5	11.5
95s	4	0.302%	332	45.8	30.2	23.1	18.8	15.9	13.9	12.5	11.3	10.3
94s	4	0.302%	332	43.8	28.3	21.3	17.2	14.6	12.7	11.3	10.3	9.4
93s	4	0.302%	332	43.5	28.1	21.1	17.0	14.4	12.5	11.2	10.1	9.3
92s	4	0.302%	332	42.4	27.1	20.2	16.4	13.9	12.2	10.9	9.9	9.1

9x offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
98o	12	0.905%	110	48.0	32.6	24.9	20.1	16.7	14.2	12.3	11.0	9.9
97o	12	0.905%	110	46.4	30.8	23.1	18.3	15.1	12.8	11.1	9.8	8.9
96o	12	0.905%	110	44.6	28.7	21.2	16.6	13.5	11.4	9.8	8.6	7.7
95o	12	0.905%	110	42.7	26.5	19.1	14.7	11.9	9.9	8.5	7.4	6.6
94o	12	0.905%	110	40.8	24.6	17.4	13.2	10.5	8.6	7.4	6.4	5.6
93o	12	0.905%	110	40.1	24.0	16.9	12.8	10.2	8.5	7.2	6.2	5.5
92o	12	0.905%	110	39.0	23.1	16.1	12.3	9.8	8.1	6.9	6.0	5.2

8x suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
87s	4	0.302%	332	47.9	33.8	26.7	22.1	19.0	16.7	15.1	13.8	12.8
86s	4	0.302%	332	46.1	31.9	24.9	20.5	17.6	15.5	14.0	12.8	11.8
85s	4	0.302%	332	44.5	30.1	23.3	19.0	16.3	14.3	12.9	11.8	10.9
84s	4	0.302%	332	42.7	28.2	21.5	17.5	14.9	13.1	11.7	10.6	9.8
83s	4	0.302%	332	40.9	26.4	19.9	16.1	13.7	12.0	10.8	9.8	9.0
82s	4	0.302%	332	40.2	25.7	19.3	15.7	13.3	11.7	10.5	9.5	8.8

**8x offsuit**

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
87o	12	0.905%	110	45.0	30.3	23.1	18.4	15.3	13.0	11.5	10.2	9.2
86o	12	0.905%	110	43.3	28.4	21.2	16.8	13.8	11.7	10.3	9.2	8.3
85o	12	0.905%	110	41.3	26.3	19.2	15.0	12.3	10.4	9.0	8.0	7.2
84o	12	0.905%	110	39.4	24.3	17.4	13.4	10.8	9.0	7.7	6.8	6.1
83o	12	0.905%	110	37.4	22.3	15.6	11.9	9.5	7.8	6.7	5.8	5.1
82o	12	0.905%	110	36.9	21.8	15.2	11.5	9.1	7.6	6.4	5.6	4.9

7x suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
76s	4	0.302%	332	45.3	31.8	25.0	20.8	17.9	15.9	14.4	13.2	12.3
75s	4	0.302%	332	43.8	30.2	23.5	19.4	16.8	14.9	13.4	12.3	11.4
74s	4	0.302%	332	41.9	28.3	21.8	17.9	15.4	13.6	12.3	11.3	10.5
73s	4	0.302%	332	40.0	26.4	20.1	16.4	14.0	12.3	11.1	10.2	9.4
72s	4	0.302%	332	38.2	24.6	18.5	15.0	12.8	11.3	10.1	9.2	8.5

7x offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
76o	12	0.905%	110	42.2	28.3	21.3	17.0	14.1	12.1	10.6	9.6	8.7
75o	12	0.905%	110	40.5	26.6	19.7	15.6	12.9	11.0	9.7	8.6	7.9
74o	12	0.905%	110	38.7	24.7	18.0	14.0	11.5	9.8	8.5	7.6	6.9
73o	12	0.905%	110	36.6	22.4	16.0	12.3	10.0	8.4	7.3	6.4	5.7
72o	12	0.905%	110	34.5	20.4	14.2	10.7	8.5	7.1	6.1	5.3	4.7

6x suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
65s	4	0.302%	332	43.0	30.2	23.7	19.7	17.0	15.1	13.7	12.7	11.8
64s	4	0.302%	332	41.4	28.5	22.2	18.3	15.8	14.2	12.9	11.9	11.1
63s	4	0.302%	332	39.5	26.6	20.4	16.8	14.5	12.9	11.8	10.8	10.1
62s	4	0.302%	332	37.6	24.9	18.9	15.5	13.3	11.8	10.7	9.8	9.1

6x offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
65o	12	0.905%	110	39.9	26.7	20.0	15.9	13.3	11.5	10.2	9.2	8.4
64o	12	0.905%	110	38.0	24.8	18.3	14.5	12.0	10.3	9.2	8.3	7.6
63o	12	0.905%	110	36.1	22.8	16.4	12.8	10.5	9.0	7.9	7.0	6.4
62o	12	0.905%	110	33.8	20.5	14.4	11.1	9.0	7.6	6.6	5.9	5.3

**5x suited**

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
54s	4	0.302%	332	41.5	29.1	22.8	19.0	16.6	14.9	13.6	12.6	11.7
53s	4	0.302%	332	39.6	27.3	21.1	17.6	15.3	13.7	12.5	11.6	10.8
52s	4	0.302%	332	37.8	25.4	19.5	16.2	14.1	12.6	11.5	10.6	9.9

5x offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
54o	12	0.905%	110	38.3	25.4	18.9	15.1	12.7	11.1	9.9	9.0	8.3
53o	12	0.905%	110	36.5	23.6	17.3	13.7	11.4	9.9	8.8	8.1	7.4
52o	12	0.905%	110	34.5	21.6	15.5	12.1	10.0	8.7	7.6	6.9	6.3

4x suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
43s	4	0.302%	332	38.7	26.5	20.4	17.0	14.8	13.3	12.1	11.2	10.4
42s	4	0.302%	332	36.9	24.7	18.9	15.6	13.6	12.2	11.2	10.3	9.6

4x offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
43o	12	0.905%	110	35.1	22.6	16.4	12.9	10.8	9.4	8.3	7.6	6.9
42o	12	0.905%	110	33.2	20.7	14.7	11.5	9.6	8.3	7.4	6.7	6.1

3x suited

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
32s	4	0.302%	332	35.9	23.9	18.2	15.1	13.1	11.8	10.8	9.9	9.2

3x offsuit

Hand	Combos	Dealt %	1 in	vs 1	vs 2	vs 3	vs 4	vs 5	vs 6	vs 7	vs 8	vs 9
32o	12	0.905%	110	32.3	19.8	14.0	10.8	8.9	7.7	6.8	6.1	5.5

3. Pocket pairs [Exact]

Set = at least one more card of your rank (includes quads). Overcards = board cards of a higher rank than your pair.

Pair	Set+ on flop	Set+ by turn	Set+ by river	Quads by river	≥1 overcard on flop	≥1 overcard by river	No overcard by river
AA	11.76%	15.51%	19.18%	0.816%	0.0%	0.0%	100.0%
KK	11.76%	15.51%	19.18%	0.816%	22.6%	35.3%	64.7%
QQ	11.76%	15.51%	19.18%	0.816%	41.4%	59.9%	40.1%
JJ	11.76%	15.51%	19.18%	0.816%	57.0%	76.3%	23.7%
TT	11.76%	15.51%	19.18%	0.816%	69.5%	86.9%	13.1%
99	11.76%	15.51%	19.18%	0.816%	79.3%	93.3%	6.7%
88	11.76%	15.51%	19.18%	0.816%	86.7%	96.9%	3.1%
77	11.76%	15.51%	19.18%	0.816%	92.1%	98.8%	1.2%



Pair	Set+ on flop	Set+ by turn	Set+ by river	Quads by river	≥1 overcard on flop	≥1 overcard by river	No overcard by river
66	11.76%	15.51%	19.18%	0.816%	95.8%	99.6%	0.4%
55	11.76%	15.51%	19.18%	0.816%	98.1%	99.9%	0.1%
44	11.76%	15.51%	19.18%	0.816%	99.4%	100.0%	0.0%
33	11.76%	15.51%	19.18%	0.816%	99.9%	100.0%	0.0%
22	11.76%	15.51%	19.18%	0.816%	100.0%	100.0%	0.0%

Set odds are the same for every pair: about **1 in 8.5** on the flop. Set over set (two pairs both flopping a set) needs both to hit: 1.018% of flops when you both hold pairs [Exact, 4 known cards].

4. Suited hands [Exact]

The same for every suited hand (11 cards of your suit remain among 50 unseen).

Event	Chance	1 in
Flop a flush (3 of your suit)	0.84%	119
Flop a flush draw (exactly 2 of your suit)	10.94%	9.1
Flop a backdoor flush draw (exactly 1)	41.59%	2.4
Flop none of your suit	46.63%	2.1
Make a flush by the turn	2.94%	34.0
Make a flush by the river	6.40%	15.6
Flush draw on flop → flush by river	34.97%	2.9
Backdoor draw on flop → flush by river	4.16%	24.0

Offsuit hands, for comparison [Exact]: chance the board brings 4+ cards of one of your two suits (a flush using one hole card) by the river = 1.85% (two suits, 12 remaining each; overlap impossible).

5. Connectors and gappers: straights [Exact]

By rank (suits don't matter for straights). *Draw* = no straight yet; **open-ended/double-gutter** = 2+ ranks complete a straight on the turn; **gutshot** = exactly 1 rank. *By river* = any straight in your best seven cards (includes the rare straights the board makes by itself).

Hand	Gap	Flop straight	Flop open-ended / double gutter	Flop gutshot	Any draw or better	Straight by river
AK	0	0.33%	0.00%	11.35%	11.7%	3.39%
KQ	0	0.65%	3.02%	12.73%	16.4%	5.15%
QJ	0	0.98%	6.37%	14.78%	22.1%	7.28%
JT	0	1.31%	9.71%	16.82%	27.8%	9.42%
T9	0	1.31%	9.71%	16.82%	27.8%	9.37%
98	0	1.31%	9.71%	16.82%	27.8%	9.32%
87	0	1.31%	9.71%	16.82%	27.8%	9.32%
76	0	1.31%	9.71%	16.82%	27.8%	9.32%
65	0	1.31%	9.71%	16.82%	27.8%	9.37%
54	0	1.31%	9.71%	16.82%	27.8%	9.42%



Hand	Gap	Flop straight	Flop open-ended / double gutter	Flop gutshot	Any draw or better	Straight by river
43	0	0.98%	6.37%	14.78%	22.1%	7.28%
32	0	0.65%	3.02%	12.73%	16.4%	5.15%
A2	wheel	0.33%	0.00%	11.35%	11.7%	3.39%
AQ	1	0.33%	0.65%	11.35%	12.3%	3.78%
KJ	1	0.65%	3.67%	12.73%	17.1%	5.53%
QT	1	0.98%	7.02%	14.78%	22.8%	7.67%
J9	1	0.98%	7.02%	14.78%	22.8%	7.62%
T8	1	0.98%	7.67%	14.78%	23.4%	8.01%
97	1	0.98%	7.67%	14.78%	23.4%	7.96%
86	1	0.98%	7.67%	14.78%	23.4%	7.96%
75	1	0.98%	7.67%	14.78%	23.4%	8.01%
64	1	0.98%	7.02%	14.78%	22.8%	7.62%
53	1	0.98%	7.02%	14.78%	22.8%	7.67%
42	1	0.65%	3.67%	12.73%	17.1%	5.53%
A3	wheel	0.33%	0.65%	11.35%	12.3%	3.78%
AJ	2	0.33%	0.98%	12.00%	13.3%	4.17%
KT	2	0.65%	4.00%	13.39%	18.0%	5.92%
Q9	2	0.65%	4.00%	13.39%	18.0%	5.87%
J8	2	0.65%	4.65%	13.39%	18.7%	6.26%
T7	2	0.65%	4.98%	14.04%	19.7%	6.64%
96	2	0.65%	4.98%	14.04%	19.7%	6.60%
85	2	0.65%	4.98%	14.04%	19.7%	6.64%
74	2	0.65%	4.65%	13.39%	18.7%	6.26%
63	2	0.65%	4.00%	13.39%	18.0%	5.87%
52	2	0.65%	4.00%	13.39%	18.0%	5.92%
A4	wheel	0.33%	0.98%	12.00%	13.3%	4.17%
AT	3	0.33%	1.31%	12.65%	14.3%	4.55%
K9	3	0.33%	1.31%	11.35%	13.0%	4.12%
Q8	3	0.33%	1.96%	11.35%	13.6%	4.51%
J7	3	0.33%	2.29%	12.00%	14.6%	4.89%
T6	3	0.33%	2.61%	12.65%	15.6%	5.28%
95	3	0.33%	2.61%	12.65%	15.6%	5.28%
84	3	0.33%	2.29%	12.00%	14.6%	4.89%
73	3	0.33%	1.96%	11.35%	13.6%	4.51%
62	3	0.33%	1.31%	11.35%	13.0%	4.12%
A5	wheel	0.33%	1.31%	12.65%	14.3%	4.55%

6. Unpaired hands: pairing your hole cards [Exact]

Same for every unpaired hand (3 cards of each of your ranks remain). Counts only hands that use your hole cards; board pairs are ignored.



Result (using your hole cards)	Flop	By turn	By river
Exactly one pair (one hole card paired once)	28.96%	34.50%	38.44%
Two pair (both hole cards paired)	2.02%	3.70%	5.63%
Trips (one hole card, two matches)	1.35%	2.46%	3.75%
Full house or quads from hole cards	0.10%	0.39%	0.92%
At least a pair with a hole card	32.43%	41.05%	48.74%
No pair with a hole card	67.57%	58.95%	51.26%

7. Head-to-head: 61 classic preflop matchups [Exact, all 1,712,304 boards each]

Category	Hand 1	Cards	Hand 2	Cards	Hand 1 wins	Tie	Hand 2 wins	Hand 1 equity
Pair vs pair	AA	A♠A♥	KK	K♠K♥	82.36%	0.54%	17.09%	82.6%
Pair vs pair	KK	K♠K♥	QQ	Q♠Q♥	82.35%	0.55%	17.10%	82.6%
Pair vs pair	QQ	Q♠Q♥	JJ	J♠J♥	82.40%	0.52%	17.08%	82.7%
Pair vs pair	AA	A♠A♥	22	2♠2♥	82.60%	0.57%	16.83%	82.9%
Pair vs pair	JJ	J♠J♥	TT	10♠10♥	82.42%	0.52%	17.07%	82.7%
Pair vs pair	77	7♠7♥	66	6♠6♥	81.63%	1.41%	16.96%	82.3%
Pair vs pair	99	9♠9♥	22	2♠2♥	82.04%	0.81%	17.15%	82.4%
Pair vs pair	KK	K♠K♥	AA	A♠A♦	17.82%	0.46%	81.71%	18.1%
Pair vs two overcards	22	2♠2♥	AKo	A♠K♦	52.75%	0.58%	46.67%	53.0%
Pair vs two overcards	22	2♠2♥	AKs	A♠K♣	49.60%	0.63%	49.77%	49.9%
Pair vs two overcards	55	5♠5♥	AKo	A♠K♦	54.82%	0.38%	44.79%	55.0%
Pair vs two overcards	QQ	Q♠Q♥	AKo	A♠K♦	56.99%	0.34%	42.66%	57.2%
Pair vs two overcards	QQ	Q♠Q♥	AKs	A♠K♣	53.59%	0.39%	46.02%	53.8%
Pair vs two overcards	JJ	J♠J♥	AQo	A♠Q♦	57.17%	0.32%	42.51%	57.3%
Pair vs two overcards	TT	10♠10♥	AJs	A♠J♣	53.89%	0.36%	45.76%	54.1%
Pair vs two overcards	77	7♠7♥	T9s	10♠9♣	49.78%	0.56%	49.67%	50.1%
Pair vs two overcards	66	6♠6♥	A7s	A♠7♣	53.35%	0.38%	46.27%	53.5%
Pair vs two overcards	88	8♠8♥	KQo	K♠Q♦	54.13%	0.33%	45.54%	54.3%
Pair vs two overcards	JJ	J♠J♥	AKo	A♠K♦	57.09%	0.33%	42.58%	57.3%
Pair vs two overcards	TT	10♠10♥	AKo	A♠K♦	57.12%	0.31%	42.57%	57.3%
Pair vs other cards	AA	A♠A♥	AKo	A♠K♦	91.95%	1.25%	6.80%	92.6%
Pair vs other cards	KK	K♠K♥	AKo	A♠K♦	69.61%	0.79%	29.60%	70.0%
Pair vs other cards	KK	K♠K♥	AQo	A♠Q♦	71.44%	0.34%	28.22%	71.6%
Pair vs other cards	QQ	Q♠Q♥	AQo	A♠Q♦	69.21%	1.24%	29.56%	69.8%
Pair vs other cards	99	9♠9♥	A9o	A♠9♦	69.46%	2.21%	28.33%	70.6%
Pair vs other cards	99	9♠9♥	A8o	A♠8♦	70.85%	0.28%	28.87%	71.0%
Pair vs other cards	AA	A♠A♥	72o	7♣2♦	87.24%	0.36%	12.40%	87.4%
Pair vs other cards	AA	A♠A♥	JTs	J♠10♣	78.12%	0.34%	21.55%	78.3%
Pair vs other cards	KK	K♠K♥	A2s	A♠2♣	67.24%	0.43%	32.33%	67.5%
Pair vs other cards	22	2♠2♥	A3o	A♠3♦	53.21%	0.65%	46.13%	53.5%
Pair vs other cards	TT	10♠10♥	98s	9♣8♣	80.93%	0.43%	18.65%	81.1%



Category	Hand 1	Cards	Hand 2	Cards	Hand 1 wins	Tie	Hand 2 wins	Hand 1 equity
Pair vs other cards	55	5♠5♥	76s	7♣6♣	49.79%	1.42%	48.80%	50.5%
Dominated	AKo	A♣K♦	AQo	A♥Q♠	71.72%	4.59%	23.69%	74.0%
Dominated	AKo	A♣K♦	AJo	A♥J♠	71.41%	4.58%	24.02%	73.7%
Dominated	AQo	A♣Q♦	AJo	A♥J♠	70.69%	5.69%	23.62%	73.5%
Dominated	AKo	A♣K♦	KQo	K♥Q♠	73.63%	1.08%	25.29%	74.2%
Dominated	KQo	K♣Q♦	KJo	K♥J♠	70.83%	5.52%	23.66%	73.6%
Dominated	ATo	A♣10♦	A5o	A♥5♠	64.49%	10.60%	24.90%	69.8%
Dominated	AKs	A♣K♣	AQs	A♥Q♥	69.16%	4.23%	26.61%	71.3%
Dominated	KJs	K♣J♣	K9s	K♥9♥	66.61%	6.96%	26.43%	70.1%
Dominated	A5s	A♣5♣	A4s	A♥4♥	35.61%	38.96%	25.43%	55.1%
Overcards vs undercards	AKo	A♣K♦	QJo	Q♥J♠	64.10%	0.39%	35.51%	64.3%
Overcards vs undercards	AKo	A♣K♦	76s	7♥6♥	57.55%	0.38%	42.06%	57.7%
Overcards vs undercards	AQo	A♣Q♦	JTs	J♥10♥	58.86%	0.42%	40.72%	59.1%
Overcards vs undercards	KQo	K♣Q♦	JTo	J♥10♠	63.78%	0.60%	35.61%	64.1%
Overcards vs undercards	A2o	A♣2♦	KQo	K♥Q♠	57.48%	0.48%	42.04%	57.7%
Overcards vs undercards	AKo	A♣K♦	T9s	10♥9♥	58.59%	0.41%	41.00%	58.8%
Overcards vs undercards	K7o	K♣7♦	QJs	Q♥J♥	51.82%	0.62%	47.56%	52.1%
Interleaved	AJo	A♣J♦	KQo	K♥Q♠	59.48%	0.39%	40.13%	59.7%
Interleaved	AQo	A♣Q♦	KJs	K♥J♥	58.42%	0.44%	41.14%	58.6%
Interleaved	A9o	A♣9♦	KTo	K♥10♠	57.79%	0.35%	41.86%	58.0%
Interleaved	K9o	K♣9♦	QTo	Q♥10♠	57.42%	0.59%	41.99%	57.7%
Interleaved	JTs	J♣10♣	98s	9♥8♥	63.29%	1.12%	35.59%	63.9%
Miscellaneous	AKs	A♣K♣	AKo	A♥K♦	7.16%	90.67%	2.17%	52.5%
Miscellaneous	AKo	A♣K♦	AKo	A♥K♠	2.17%	95.65%	2.17%	50.0%
Miscellaneous	72o	7♣2♦	32o	3♥2♠	55.87%	18.15%	25.97%	64.9%
Miscellaneous	AKo	A♣K♦	72o	7♥2♠	66.79%	0.43%	32.78%	67.0%
Miscellaneous	QQ	Q♠Q♥	AKo	A♠K♥	56.10%	0.50%	43.40%	56.4%
Miscellaneous	T9s	10♣9♣	AKo	A♥K♦	41.00%	0.41%	58.59%	41.2%
Miscellaneous	65s	6♣5♣	AA	A♠A♥	22.87%	0.37%	76.76%	23.1%
Miscellaneous	JTs	J♣10♣	AKo	A♥K♦	40.97%	0.42%	58.61%	41.2%

Summary: a higher pair beats a lower pair about **82%**; a pair vs two overcards is close to a coin flip (~**50-57%** for the pair); a dominated hand (shared card, lower kicker) wins only ~**26-30%**; a pair vs one overcard and one undercard wins about **70%**; the same two hands, suited vs offsuit, is about **52.5%** for the suited one.



8. Hand-ranking odds [Exact]

Hand	5-card combos	5-card chance	1 in	7-card combos	Best hand by river	1 in
Royal flush	4	0.0002%	649,740	4,324	0.0032%	30,940.0
Straight flush	36	0.0014%	72,193	37,260	0.0279%	3,590.6
Four of a kind	624	0.0240%	4,165	224,848	0.1681%	595.0
Full house	3,744	0.1441%	694	3,473,184	2.5961%	38.5
Flush	5,108	0.1965%	509	4,047,644	3.0255%	33.1
Straight	10,200	0.3925%	255	6,180,020	4.6194%	21.6
Three of a kind	54,912	2.1128%	47	6,461,620	4.8299%	20.7
Two pair	123,552	4.7539%	21	31,433,400	23.4955%	4.3
One pair	1,098,240	42.2569%	2	58,627,800	43.8225%	2.3
High card	1,302,540	50.1177%	2	23,294,460	17.4119%	5.7
Total	2,598,960	100%		133,784,560	100%	

9. Outs to equity [Exact]

Outs = unseen cards that make your hand. Flop: 47 unseen cards; turn: 46.

Outs	Flop → turn	Flop → river (both cards)	Turn → river	Rule of 4	Rule of 2	Typical draw
1	2.1%	4.3%	2.2%	4%	2%	
2	4.3%	8.4%	4.3%	8%	4%	Pocket pair → set
3	6.4%	12.5%	6.5%	12%	6%	One overcard
4	8.5%	16.5%	8.7%	16%	8%	Gutshot / two pair → full house
5	10.6%	20.4%	10.9%	20%	10%	Pair → two pair or trips
6	12.8%	24.1%	13.0%	24%	12%	Two overcards
7	14.9%	27.8%	15.2%	28%	14%	Set → full house+ (turn)
8	17.0%	31.5%	17.4%	32%	16%	Open-ended straight
9	19.1%	35.0%	19.6%	36%	18%	Flush draw
10	21.3%	38.4%	21.7%	40%	20%	Set → full house+ (flop)
11	23.4%	41.7%	23.9%	44%	22%	
12	25.5%	45.0%	26.1%	48%	24%	Flush + gutshot
13	27.7%	48.1%	28.3%	52%	26%	
14	29.8%	51.2%	30.4%	56%	28%	
15	31.9%	54.1%	32.6%	60%	30%	Flush + open-ended
16	34.0%	57.0%	34.8%	64%	32%	
17	36.2%	59.8%	37.0%	68%	34%	
18	38.3%	62.4%	39.1%	72%	36%	
19	40.4%	65.0%	41.3%	76%	38%	
20	42.6%	67.5%	43.5%	80%	40%	
21	44.7%	69.9%	45.7%	84%	42%	Flush + OESD + overcard



10. Common draws vs made hands on the flop [Exact, all turn/river cards]

Situation	Draw	Made hand	Flop	Draw wins	Tie	Made hand wins
Flush draw vs top pair	A♥5♥	K♣Q♦	K♥9♥4♣	45.9%	0.0%	54.1%
Flush draw vs overpair	J♥10♥	A♣A♦	8♥4♥2♣	38.4%	0.0%	61.6%
Open-ender vs top pair	J♣10♦	Q♠9♠	9♥8♣2♦	46.9%	0.0%	53.1%
Open-ender vs set	J♣10♦	8♠8♦	9♥8♣2♦	25.9%	0.0%	74.1%
Gutshot vs top pair	J♣9♦	K♠Q♠	K♥10♣3♦	14.3%	0.0%	85.7%
Flush draw + open-ender vs top pair	J♥10♥	A♦9♣	9♥8♥2♣	68.9%	0.0%	31.1%
Flush draw + OESD vs set	J♥10♥	2♠2♦	9♥8♥2♣	42.1%	0.0%	57.9%
Nut flush draw vs set	A♥4♥	K♣K♦	K♥8♥3♣	25.6%	0.0%	74.4%
Two overcards vs middle pair	A♣K♦	9♠8♠	Q♥8♣3♦	23.7%	0.0%	76.3%
Pair + flush draw vs overpair	9♥8♥	Q♠Q♦	9♣4♥2♥	49.8%	0.0%	50.2%
Overpair vs underpair	10♠10♦	8♠8♥	K♦5♠2♣	91.6%	0.0%	8.4%
Top pair weak kicker vs top pair top kicker	K♣7♦	K♠A♦	K♥9♣4♠	11.2%	1.2%	87.6%
Set vs flush draw + pair	6♠6♦	A♥9♥	9♣6♥2♥	70.2%	0.0%	29.8%
Middle pair vs bottom pair	9♠8♠	4♣4♦	J♥9♠3♦	91.2%	0.0%	8.8%
Flush draw + two overcards vs top pair	A♥Q♥	10♠9♦	10♠6♥2♥	53.8%	0.0%	46.2%

The first hand listed is the 'draw' or hand being tested; in the last few rows it's the hand named first.

11. Pot odds, MDF and bluff break-even [Exact]

Bet as a fraction of the pot. **Caller needs** = $\text{bet} \div (\text{pot} + 2 \cdot \text{bet})$. **MDF** (minimum defence frequency) = $\text{pot} \div (\text{pot} + \text{bet})$: how often the defender must continue so a pure bluff can't profit. **Bluff must work** = $\text{bet} \div (\text{pot} + \text{bet})$.

Bet size	Caller needs equity	Pot odds (x : 1)	MDF	Bluff must work
0.20 pot	14.3%	6.00 : 1	83.3%	16.7%
0.25 pot	16.7%	5.00 : 1	80.0%	20.0%
0.33 pot	20.0%	4.00 : 1	75.0%	25.0%
0.40 pot	22.2%	3.50 : 1	71.4%	28.6%
0.50 pot	25.0%	3.00 : 1	66.7%	33.3%
0.60 pot	27.3%	2.67 : 1	62.5%	37.5%
0.67 pot	28.6%	2.50 : 1	60.0%	40.0%
0.75 pot	30.0%	2.33 : 1	57.1%	42.9%
0.80 pot	30.8%	2.25 : 1	55.6%	44.4%
1.00 pot	33.3%	2.00 : 1	50.0%	50.0%
1.25 pot	35.7%	1.80 : 1	44.4%	55.6%
1.50 pot	37.5%	1.67 : 1	40.0%	60.0%
2.00 pot	40.0%	1.50 : 1	33.3%	66.7%
3.00 pot	42.9%	1.33 : 1	25.0%	75.0%

**Implied odds needed (one card to come) [Exact]**

Extra money you must win **later, when you hit**, to make a turn call break even, as a multiple of the pot before the bet: $X = ((1-p) \cdot \text{bet} - p \cdot (\text{pot} + \text{bet})) \div p$, with $p = \text{outs} \div 46$. '—' = the call is already profitable on direct odds.

Outs (p)	1/3-pot bet	1/2-pot bet	3/4-pot bet	Pot bet
4 (8.7%)	2.17× pot	3.75× pot	6.13× pot	8.50× pot
5 (10.9%)	1.40× pot	2.60× pot	4.40× pot	6.20× pot
6 (13.0%)	0.89× pot	1.83× pot	3.25× pot	4.67× pot
8 (17.4%)	0.25× pot	0.88× pot	1.81× pot	2.75× pot
9 (19.6%)	0.04× pot	0.56× pot	1.33× pot	2.11× pot
10 (21.7%)	—	0.30× pot	0.95× pot	1.60× pot
12 (26.1%)	—	—	0.38× pot	0.83× pot
15 (32.6%)	—	—	—	0.07× pot

12. Preflop all-in equity vs top 5% / 10% / 20% ranges [MC 60,000]

Ranges = the best hands ranked by equity vs one random hand, filled to $\geq$ the target share: top 5% = 5.4% (AA, KK, QQ, JJ, TT, 99, 88, AKs, AQs, 77, AJs, AKo); top 10% = 10.1%; top 20% = 20.8%. Hero's specific suits as in Section 2 (card removal included).

Hand	vs top 5%	vs top 10%	vs top 20%	Hand	vs top 5%	vs top 10%	vs top 20%
AA	82.3	84.4	85.7	87s	28.4	34.3	37.2
AKs	47.6	57.9	65.0	86s	27.6	32.2	36.8
AQs	40.9	51.8	60.4	85s	26.6	31.8	34.7
AJs	37.2	46.1	57.4	84s	25.4	30.5	33.4
ATs	35.4	40.4	53.9	83s	23.9	28.7	32.1
A9s	32.9	36.6	49.9	82s	24.1	28.9	32.4
A8s	31.6	34.8	47.1	A7o	26.8	29.9	41.9
A7s	30.5	33.9	44.7	K7o	25.6	30.2	33.1
A6s	30.6	33.0	43.9	Q7o	25.5	28.8	30.8
A5s	31.8	34.2	43.9	J7o	25.0	29.2	31.4
A4s	31.6	34.1	43.4	T7o	24.9	29.2	32.1
A3s	31.1	33.5	43.0	97o	24.7	30.3	32.6
A2s	31.1	33.4	43.1	87o	24.7	30.8	33.8
AKo	44.8	55.8	62.8	77	31.7	43.7	50.7
KK	70.7	71.8	75.3	76s	27.8	33.5	37.2
KQs	37.5	40.2	49.2	75s	26.6	32.4	35.4
KJs	36.1	38.5	46.3	74s	25.3	30.8	34.0
KTs	35.5	37.1	43.0	73s	23.9	30.0	32.6
K9s	32.5	35.8	39.7	72s	22.5	28.3	31.6
K8s	30.7	34.0	37.4	A6o	26.9	29.2	40.4
K7s	29.5	33.8	36.6	K6o	25.8	29.7	33.6
K6s	29.8	33.5	36.5	Q6o	25.9	28.7	31.7



Hand	vs top 5%	vs top 10%	vs top 20%	Hand	vs top 5%	vs top 10%	vs top 20%
K5s	29.9	33.3	36.3	J6o	24.3	27.7	30.7
K4s	29.3	33.0	35.8	T6o	24.5	27.4	31.3
K3s	28.9	32.5	35.7	96o	24.2	28.4	31.7
K2s	28.8	32.5	35.6	86o	24.1	29.1	32.8
AQo	37.7	49.5	58.6	76o	24.2	29.7	33.3
KQo	33.8	36.9	46.5	66	30.5	40.6	48.9
QQ	62.0	65.8	69.1	65s	27.9	32.3	36.7
QJs	36.6	37.5	41.1	64s	26.4	31.9	35.4
QTs	35.7	36.8	39.4	63s	25.1	30.5	34.2
Q9s	33.2	35.7	36.9	62s	23.3	28.7	32.5
Q8s	31.0	34.0	36.3	A5o	28.4	30.8	41.3
Q7s	29.2	32.7	34.7	K5o	26.1	29.7	33.2
Q6s	29.4	32.3	35.1	Q5o	25.9	29.0	31.0
Q5s	29.4	32.6	35.1	J5o	24.5	27.7	30.3
Q4s	29.2	32.1	34.2	T5o	23.2	26.7	29.9
Q3s	29.1	31.6	33.7	95o	22.9	28.0	30.3
Q2s	28.5	31.4	33.8	85o	22.9	28.3	31.2
AJo	33.4	43.1	55.3	75o	22.9	28.8	31.9
KJo	32.1	34.5	43.4	65o	24.1	28.9	33.1
QJo	33.3	34.2	38.0	55	30.6	39.3	47.2
JJ	55.2	60.1	65.0	54s	27.9	32.8	36.1
JTs	35.3	36.7	39.3	53s	26.5	31.5	34.8
J9s	33.2	35.9	37.6	52s	25.0	30.1	33.2
J8s	30.9	34.0	36.3	A4o	27.7	30.2	40.6
J7s	28.8	32.8	34.9	K4o	25.5	29.4	32.5
J6s	27.7	31.1	34.1	Q4o	25.6	28.7	30.5
J5s	28.2	31.2	34.1	J4o	23.9	27.4	30.0
J4s	27.9	30.8	33.8	T4o	23.5	26.5	29.4
J3s	27.5	30.6	33.2	94o	21.6	25.9	29.0
J2s	27.3	30.6	32.8	84o	21.4	27.1	29.8
ATo	31.9	37.2	51.3	74o	21.5	27.1	30.5
KTo	31.5	33.4	40.4	64o	22.7	28.3	31.9
QTo	32.6	33.4	35.8	54o	24.4	28.9	32.8
JTo	31.9	33.4	36.0	44	30.4	38.9	45.3
TT	49.2	54.9	60.9	43s	26.2	30.8	34.5
T9s	32.9	36.0	38.3	42s	24.4	29.6	33.0
T8s	31.0	34.4	36.9	A3o	27.6	30.1	39.9
T7s	29.0	32.4	35.9	K3o	25.1	28.9	32.3
T6s	27.8	31.1	34.6	Q3o	24.6	28.1	30.2
T5s	27.2	30.6	33.6	J3o	23.7	26.5	29.6
T4s	27.0	30.1	33.1	T3o	23.0	26.1	29.1



Hand	vs top 5%	vs top 10%	vs top 20%	Hand	vs top 5%	vs top 10%	vs top 20%
T3s	26.7	29.6	33.4	93o	21.6	26.2	28.5
T2s	26.7	29.6	32.7	83o	19.8	24.8	28.0
A9o	29.0	32.4	47.7	73o	19.9	25.7	28.9
K9o	29.1	32.0	35.5	63o	21.2	26.3	30.2
Q9o	29.8	32.4	33.7	53o	22.9	27.8	30.9
J9o	29.5	31.9	33.8	43o	22.2	27.2	30.7
T9o	30.0	32.3	34.9	33	29.6	38.6	44.5
99	43.2	50.4	56.6	32s	24.3	29.2	32.6
98s	30.5	35.4	37.7	A2o	27.2	29.6	39.6
97s	28.3	33.8	36.3	K2o	24.7	28.5	32.0
96s	27.6	32.3	35.6	Q2o	24.5	27.3	29.7
95s	26.9	31.2	34.4	J2o	23.2	26.5	29.4
94s	25.5	29.9	32.7	T2o	22.4	25.8	28.6
93s	25.3	30.0	32.4	92o	21.4	25.6	28.4
92s	24.6	29.5	32.4	82o	20.2	24.9	28.4
A8o	28.2	31.3	43.9	72o	18.3	24.2	27.7
K8o	26.7	30.1	33.3	62o	20.0	24.9	28.8
Q8o	27.3	30.4	32.2	52o	21.1	26.2	29.7
J8o	27.4	30.2	32.8	42o	21.0	25.8	29.4
T8o	27.3	30.6	33.4	32o	20.3	25.4	28.6
98o	26.8	31.7	34.1	22	29.2	38.0	43.6
88	37.6	46.6	53.7				

13. Board texture frequencies [Exact, all 22,100 flops and all 2,598,960 five-card boards]

Flop texture	Chance	1 in
Paired (exactly one pair)	16.94%	5.9
Trips	0.24%	425
Unpaired	82.82%	1.2
Monotone (3 suits same)	5.18%	19.3
Two-tone	55.06%	1.8
Rainbow	39.76%	2.5
Straight possible (3 ranks within a 5-rank window)	18.53%	5.4
Three connected ranks (e.g. 9-8-7)	3.48%	28.8
Ace-high or contains an ace	21.74%	4.6
Two or more cards T or higher	32.67%	3.1
All cards 8 or lower	14.82%	6.7



Five-card board (river)	Chance	1 in
Paired or better (any repeated rank)	49.29%	2.0
Flush possible (3+ of a suit)	37.11%	2.7
Four or more of one suit	4.49%	22.3
Straight possible (3+ ranks within a 5-rank window)	74.66%	1.3
Board is itself a straight or better	0.76%	132

14. Long-run frequencies: 'how often will I see...?' [Exact]

Event (per hand dealt)	Chance per hand	Expected in 100 hands	≥1 in 100 hands	≥1 in 500	≥1 in 1,000	Expected in 10,000
AA	0.452%	0.45	36.5%	89.6%	98.9%	45
KK or AA	0.905%	0.90	59.7%	98.9%	100.0%	90
QQ+ or AK	2.564%	2.56	92.6%	100.0%	100.0%	256
Any pocket pair	5.882%	5.88	99.8%	100.0%	100.0%	588
AK (any)	1.207%	1.21	70.3%	99.8%	100.0%	121
Suited connectors (52 combos)	3.922%	3.92	98.2%	100.0%	100.0%	392

Event	Chance	1 in
AA two hands in a row	0.00205%	48,841
No pocket pair in 50 hands	4.8%	20.7
No AA in 1,000 hands	1.07%	93.2
You hold AA and one of 8 opponents holds KK (9-handed)	0.0177%	5,658
Given AA, at least one of 8 opponents has KK	3.91%	25.6
Flop at least one set in 10 pocket pairs	71.4%	1.4
Suited hand: no flush in 20 suited hands seen to the river	26.6%	3.8
Royal flush (best 7-card hand) at least once in 100,000 hands to the river	96.1%	

All figures computed for study away from the table. Not for real-time use during play.



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