

Probability of getting different card hands.

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Hi.

Suppose you have a deck of 52 playing cards, and you are going to play an 8-card (yep, 8 cards!) extended (because we have more than five cards) poker game. In this type of game, there would be the following hands:

Royal flush: AKQJ10987 all of the same suit

Straight flush: In numeric order (either A2345678910JQK or 2345678910JQKA), all of the same suit, but not a royal flush

Flush: All of the same suit, but not straight or royal

Straight: Numeric order but not all the same suit

Dual quads: Two quads, like AAAAKKKK

Quads/four of a kind: Four cards of the same number: 22223KJ9

Quads and three of a kind: Ex. 4444KKKA

Quads and a pair: Ex. 10101010AA32

Dual three of a kind and a pair: Ex. 555JJJ1010

Dual three of a kind: Ex. 999AAA3J

Three of a kind & a pair: Ex. 777225KA

Three of a kind: Three of the same number: 555AKJ107

Four pair: Four pairs, ie. 88AA2266

Three pair: Three pairs, ie. KKJJ10106Q

Two pair: Two pairs, ie. JJ9952KA

One pair: Two cards of the same number, ie. AA32910KJ

No pair: No pairs and no other patterns at all, ie. 6JQ8K10A2

What is the probability of each of these, if the game is played w/a single deck? I figured that for a royal flush you have a probability of 1 in 188,134,537.5, for a straight flush it's 1 in 31,355,756.25, and for dual quads, 1 in 4,823,962.5. Are these right? What about the other hands? What are the probabilities of those? The probabilities are needed to figure out which hands are worth more. Like, for example, does dual three of a kind & a pair beat four pair, or the other way around? Does four of a kind beat three pair? Thanks for any help.

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