

Poker Hands

July 24, 2013

A deck of cards has 52 cards, 13 numbers (**A**, **2**, **3**, **4**, **5**, **6**, **7**, **8**, **9**, **10**, **J**, **Q**, **K**), 4 suits (*spades, clubs, hearts, diamonds*). A poker hand consists of 5 cards from the deck. A pair means two cards have the same number. Three of a kind, means three of the same number, similarly defined for four of a kind. A Full House is when the poker hand consists of a three-of-a-kind and a pair (example **AA222**). A straight means you have five consecutive numbers, the first possible straight is **A – 2 – 3 – 4 – 5**, the last one is **10 – J – Q – K – A**. A flush means the five cards are of the same suit. A straight flush means the hand is both a flush and a straight.

1. How many poker hands are there? (For example, one poker hand is **A** of hearts, **2** of spades, **J** of hearts, **5** of clubs and **A** of diamonds.)

2. How many poker hands are there with just one pair?

3. How many poker hands with two pairs are there?

4. How many poker hands with three of a kind are there (and not a full house)?

5. How many poker hands with four of a kind are there?

6. How many poker hands are a full house?

7. How many poker hands are a straight flush?

8. How many poker hands are a straight but not a flush?

9. How many poker hands are a flush but not a straight?

10. How many poker hands are left (no pair, no flush, no straight)?

11. Can you give a hierarchy to the poker hands from less common to most common?