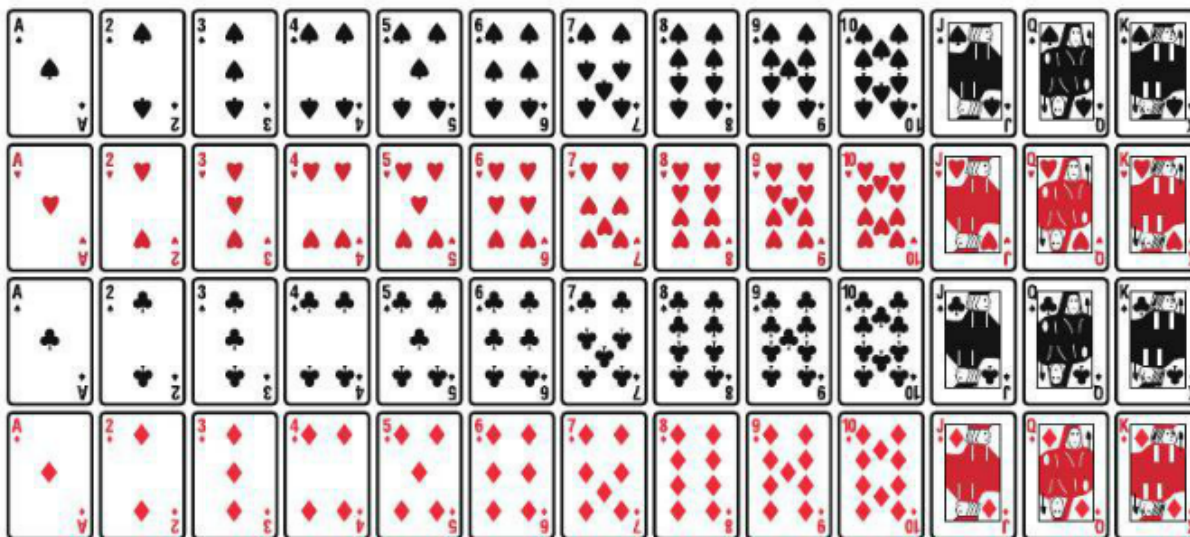


The *types* or *kinds* of cards are A, 2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, and K.

The *suits* are ♥, ♦, ♣, and ♠.

Half the cards are *red* (the ♥'s and ♦'s) and the other half are *black* (the ♣'s and ♠'s).

The face cards are J, Q, and K; A's are not face cards as *Aces have no faces*.



1. Five cards are dealt from a fair poker deck. How many five-card hands can be created to contain

<ul style="list-style-type: none"> (a) only red cards? (b) two red cards and three black cards? (c) only face cards? (d) only black numbered cards? (e) no face cards? (f) three cards of the same kind? (g) two 3's, two 4's and one 5? (h) one 2, one 3, one 4, one 5 and one 6? (i) only diamonds (♦)? (j) all the Kings? (k) one heart (♥), one diamond (♦), one club (♣), and two spades (♠)? (l) the Ace of spades (♠) but no other Aces? (m) only even numbered clubs (♣)? 	<ul style="list-style-type: none"> (n) no cards of the same kind? (o) no cards having the same suit? (p) three cards of the same suit? (q) neither hearts (♥) nor clubs (♣)? (r) only even-numbered cards? (s) four aces? (t) one King, one Queen, one Jack, one Ace? (u) only cards of the same suit? (v) no cards of the same suit? (w) five cards in a row (a Straight) if Aces are high or low? (x) five cards in a row of the same suit (a Straight Flush) if Aces are low? (y) two pairs? (z) four of a kind?
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2. In how many ways can five cards be drawn from a fair poker deck so that the first card is a Queen, the second and third cards are Aces, and the fourth and fifth cards are red sevens?
3. In how many ways can five cards be drawn from a fair poker deck so that the first card is an Ace, the second card is a Queen, the third card is a red seven, the fourth card is an Ace, and the fifth card is a red seven?
4. In how many ways can five cards be drawn from a fair poker deck so that the first card is a red seven, the second and third cards are Aces, the fourth card is a red seven, and the fifth card is a Queen?
5. How many five-card hands containing two red cards and three black cards can be dealt from a fair poker deck?
6. How many five-card hands containing three hearts (♥) and two spades (♠) can be dealt from a fair poker deck?
7. How many five-card hands containing two 2's and three 7's can be dealt from a fair poker deck?
8. How many five card hands containing two clubs (♣), one diamond (♦), one heart (♥), and one spade (♠) can be dealt from a fair poker deck?