HIGH CARD POINTS (HCP) --- ANSWERS

1.

NORTH: 12; SOUTH 11; N & S TOTAL: **23**

WEST: 13 EAST: 4; E & W TOTAL: **17** **TOTAL OF 4 HANDS? 40**

2. How many *High Card Points* are there in a deck of 52 cards? 40

   What is the average number of High Card Points that each player receives on each hand? 10

   How many HCP's do you think you need for a "strong" hand? *About 13-17*; for a "very strong" hand? *About 18+*

   How few HCP's do you think you have for a "weak" hand? *Under 7 or so;* for a "very weak" hand? *Under 4*

   What is the highest number of HCP you could be dealt in one hand? **37** There are 16 Face Cards, a player can have all but 3 Jacks. the lowest? **0**

3. These questions require that you know about "***Combinations"***. Notation**: C(n, r)** or **nCr** or $\binom{\mathbf{n}}{\mathbf{r}}$.

   How many different hands are possible for North? C(52, 13) = 6.35×10^{11} = **635 billion**

   Write each answer in the form ***1 of every _____ hands***. Determine the **probability** that your 13-card hand:

   A. has zero *High Card Points*? ***1 of every 275*** $[C(36,13) / C(52, 13)]^{-1} = [0.00364]^{-1} = 275$

   B. has the maximum number of HCP? ***1 of every 159 billion*** $[4/ C(52, 13)]^{-1} = C(52, 13)/4 = 159$ Billion

   C. has no *Honor Cards*: ***1 of every 1,828*** $[C(32,13) / C(52, 13)]^{-1} = [0.000\ 457]^{-1} =$

   D. has exactly one *Void* [no cards in one suit]? ***1 of every 20*** Approx: $[4*C(39,13) / C(52, 13)]^{-1} =$

   E. On 3-27-18 at STLBC, Dummy's highest card was an 8. The probability of that is ***1 of every 16,960***

Given the **total HCP of both partners,** this list estimates the number of tricks that can be taken in NT**:**

20-22: 1 NT; 23-24: 2 NT; 25-26: 3 NT; 27-28: 4 NT; 29-31: 5 NT; 32-35: 6 NT; 36+ : 7 NT