

GROUP WORK on poker hand probabilities

A standard deck has 52 cards

A 2 3 4 5 6 7 8 9 10 J Q K of ♠ ♦ ♥ ♣

A poker hand is a choice of 5 of the cards, as an unordered set, e.g.

$\{4♥, J♠, 6♣, 10♦, 2♠\}$

① How many poker hands are there?

② What is the probability that it is a...

ROYAL FLUSH e.g. $\{10♥, J♥, Q♥, K♥, A♥\}$

STRAIGHT FLUSH e.g. $\{7♦, 8♦, 9♦, 10♦, J♦\}$
(not ROYAL) (aces low or high)

STRAIGHT (not a straight flush) e.g. $\{7♦, 8♠, 9♥, 10♣, J♠\}$

FLUSH (not a straight flush) e.g. $\{5♦, 6♦, 9♦, Q♦, K♦\}$

4 OF A KIND e.g. $\{5♦, 5♠, 5♥, 5♣, J♠\}$

FULL HOUSE e.g. $\{5♦, 5♠, 5♥, J♦, J♠\}$

3 OF A KIND (not 4, not full house) e.g. $\{5♦, 5♠, 5♥, J♦, 6♠\}$

2 PAIR e.g. $\{5♦, 5♠, 10♦, 10♠, 3♥\}$

1 PAIR e.g. $\{5♦, 5♠, 10♦, 8♠, K♥\}$