HOMEWORK SET XII

1. Suppose you have a fair deck of cards and are playing a game such that you have six cards in your hand.
(a) How many ways can you get 6 cards all in the same suit?

(b) How many ways can you get two sets of three of a kind?

2. Suppose that the pirate alphabet has only 6 letters (A, R, G, H, M, T). All pirate words are exactly 6 letters long (i.e. ARGHHH)
(a) Suppose any sequence of 6 letters is a valid pirate word. How many words are there in the pirate language?

(b) Suppose any sequence of 6 **non-repeating** letters is a valid pirate word. How many words are there in the pirate language?

(c) Suppose any sequence of 6 letters that **has at least one repeating letter** is a pirate word. How many words are in the pirate alphabet? (Hint: use answers to a and b)