Quiz 7-8, Jason Dorweiler, December 4, 2013

1.
a. p(10,5) = 10!/(10-5)! = 30240
b. c(10,5) = 10!/(5!(10-5)!) = 252

2.
a. There are 5! strings that use each letter once but there are only 3! = 6 strings that begin with 'a' and end with 'e'.
b. There are 4*(3!)= 24 strings that contain the string 'de' and use each letter only once.

3.
a. There are 3^{10} = 59049 different color combinations.
b. This is a combination with repetition so C(5+(3-1),5) = C(7,5) = 21
c. $C(10,2) = \frac{10!}{2!*8!} = 45$
d. 3^{10} total combinations - [C(10,0)+C(10,1)+C(10,2)] = 59049 - (1+10+45) = 58993