PC40S Permutations

1.) How many arrangements are there of the letters DOG?

2.) How many arrangements are there of the letters SANDWICH?

3.) Show that ${}_7P_4 = 7({}_6P_3)$.

4.) Solve for n: ${}_nP_3 = 7({}_6P_2)$.

5.) Explain the meaning of ${}_8P_3$. Why does ${}_3P_8$ not make sense?

6.) Solve for n if ${}_nP_2 = 72$.

7.) In how many ways can 5 seats on a bench be assigned from amongst 12 people?

8.) How many different ways can 8 vacant seats be occupied on a bus by 4 people, if each person occupies only one seat?

9.) In how many ways can a president, treasurer and a secretary be selected from amongst 10 candidates, if no candidate can hold more than one position?

10.) How many arrangements of the word FATHER can be made if F is first?

11.) How many arrangements of the word UNCLE can be made if C is first and L is last?

12.) How many arrangements of the word DAUGHTER can be made if UG is last?

13.) Find the number of different arrangements of the letters in the word ANSWER under each condition:

a.) without restrictions
b.) that begin with a vowel and end with a consonant
c.) that have the three letters ANS adjacent but not necessarily in that order

14.) Ann, Brian, Colin, Diane, and Eric go to watch a movie together and sit in 5 adjacent seats. In how many ways can this be done under each condition?

a.) without restrictions?
b.) If Brian sits next to Diane?
c.) If Ann refuses to sit next to Eric?

Answers:

1.) 6
2.) 40320
4.) 7
6.) 9
7.) 95040
8.) 1680
9.) 720
10.) 120
11.) 6
12.) 720
13a.) 720
b.) 192
c.) 144
14a.) 120
b.) 48
c.) 72