What is the value of $P(7,3)$? Your answer should be an actual number. ______

What is the value of $C(9,2)$? Your answer should be an actual number. ______

How many different strings can be formed by rearranging the letters in the word COMPUTER? _____

A) $C(8,5)$  B) $C(8,3)$  C) $P(8,5)$  D) $P(8,3)$  E) $P(8,8)$  F) $8^8$

26 refrigerator magnets (A-Z). No duplicates. How many 7-letter strings can be formed from them? _____

A) $26^7$  B) $P(26,7)$  C) $C(26,7)$  D) $26!$  E) $7^{26}$  F) $7!$

How many different strings can be formed by rearranging the letters in the word SEEKKEEPER? _____

A) $10!/(5!2!)$  B) $(5!2!)/10!$  C) $P(10,5)$  D) $C(10,5)$  E) $10^5$  F) $10!$

Snow White has 50 one-dollar bills, which she wishes to divide up among the seven different dwarves. Each dwarf may receive any (integral) number of bills, from 0 to 50. How many different ways can she distribute this money? _____

A) $C(56,7)$  B) $C(56,6)$  C) $C(50,7)$  D) $C(50,6)$  E) $50/7$  F) $50^7$  G) $7^{50}$

A standard combination lock that you might use on a locker has digits on the dial numbered 0-39. The combination to open the lock uses three of these numbers (turn right to first number, turn left to second number, turn right to third number). Your friend has forgotten the combination. How many 3-digit combinations are possible if your friend knows for sure that none of the three numbers of the combination is the digit 0? _____

A) $(40^3 - 1^3)$  B) $(40^3 / 1^3)$  C) $(40!)/(3!)$  D) $P(39,3)$  E) $C(39,3)$  F) $39^3$

Related to the above question with the combination lock, what if your friend also remembers that no digit in the combination is repeated (in addition to none of the digits is 0). How many 3-digit combinations are possible now? _____

A) $(40^3 - 1^3)$  B) $(40^3 / 1^3)$  C) $(40!)/(3!)$  D) $P(39,3)$  E) $C(39,3)$  F) $39^3$

Hugo and Viviana work in an office with eight other coworkers. Out of these 10 workers, their boss needs to choose a group of four to work together on a project. Suppose Hugo and Viviana absolutely refuse, under any circumstances, to work together. Under this restriction, how many different working groups of four can be formed? _____

A) $C(10,4) - C(8,2)$  B) $C(8,4)$  C) $C(9,2) + C(8,2)$  D) $C(10,4) - C(10,2)$  E) $10^4 - 10^2$  F) $8^4$
In Section 3.5 we discussed the Search and the BSearch algorithms. If a list contains \( n \) elements, …

A) \( n^2 \)  
B) \( n \)  
C) \( 2^n \)  
D) \( n \log_2 n \)  
E) \( n! \)  
F) 1  
G) \( \log_2 n \)

Search will require approximately _____ comparison(s) while BSearch will require approximately _____ comparison(s).

An urn contains 10 balls numbered 1-10. Four balls are drawn from the urn as described below, and the numbers on the balls are recorded. How many ways are there to do this …

A) \( 4^{10} \)  
B) \( 10^4 \)  
C) \( \text{P}(10,4) \)  
D) \( \text{C}(10,4) \)  
E) \( 4! \)  
F) \( 10! - 6! \)  
G) \( 10! - 4! \)

if the four balls are drawn all at once? _____
if the four balls are drawn one at a time and replaced before the next one is drawn? _____
if the four balls are drawn one at a time and not replaced before the next one is drawn? _____

Match the person to what the person is famous for.

_____ Only one of these four who was not awarded a Turing Award
_____ Known as the father of analysis of algorithms  
_____ Apologized for inventing the null reference  
_____ Popularized the visualization of a nanosecond  
_____ Has an algorithm named after him/her

How many four-digit binary strings are there that do not contain 101 or 011? First draw the entire decision tree with 0s to the left and 1s to the right.

Now cross out leaf nodes of any string that contains 101 or 011 in its path. The remaining leaf nodes should be paths that do not contain 101 or 011. How many such four-digit binary strings do not contain 101 or 011? _____