MA4413 and MA4704

Counting, Combinations and Permutations

September 1, 2013

Choose Operator

1 Choose Operator

$$\binom{n}{k} = \frac{n!}{k! \times (n-k)!}$$

Evaluate the following:

1 $\binom{5}{2}$

2 $\binom{5}{0}$

3 $\binom{6}{3}$

4 $\binom{6}{6}$

5 $\binom{10}{1}$

6 $\binom{10}{9}$

2 In how many ways can a group of four people be selected from three men and four women? In how many of these groups are there more women than men?

3 In how many ways can a group of five be selected from ten people How many groups can be selected if two particular people from the ten can not be selected in the same group?

Counting Sets using Venn Diagrams

4 The Venn Diagram shows the number of elements in each subset of set S. If $P(A) = 3/10$ and $P(B) = 1/2$, find the values of x and y

5 How many different four digit numners greater than 5000 can be formed from the digits **2,4,5,8,9** if each digit can only be used once in any given number. How many of these numbers are odd?