

How many positive integers between 100 and 999 inclusive are divisible by 3 or 4?

How many positive integers between 100 and 999 inclusive are divisible by 3 but not 4?

How many one-to-one functions are there from a set with five elements to sets with 4 number of elements?

How many one-to-one functions are there from a set with five elements to sets with 6 number of elements?

How many numbers must be selected from the set $\{1, 2, 3, 4, 5, 6, 7, 8\}$ to guarantee that at least one pair of these numbers add up to 9?

The English alphabet contains 21 consonants and five vowels. How many strings of six lowercase letters of the English alphabet contain
a) exactly one vowel?

b) exactly two vowels?

c) at least one vowel?

d) at least two vowel?

A vending machine dispensing books of stamps accepts only one-dollar coins, \$1 bills, and \$5 bills. Find a recurrence relation for the number of ways to deposit n dollars in the vending machine, where the order in which the coins and bills are deposited matters.

Solve the recurrence relation together with the initial conditions given. $a_n = 5a_{n-1} - 6a_{n-2}$ for $n \geq 2$,
 $a_0 = 1, a_1 = 0$

Find all solutions of the recurrence relation $a_n = 2a_{n-1} + 3^n$

Given linear nonhomogeneous recurrence relation $a_n = 8a_{n-2} - 16a_{n-4} + F(n)$

A) What is the general form of the particular solution guaranteed to exist if $F(n) = n^3$

B) Find the t and s , if $F(n) = n^4 2^n$

C) Find the t and s , if $F(n) = n^2 4^n$