Combinator

You know combinations: for example, if you take 5 cards from a 52 cards deck you have 2,598,960 different combinations.

In mathematics the number of x combinations you can take from a set of n elements is called the binomial coefficient of n and x, or more often n choose x.

HINT: one of formulas(for m = n choose x) from combinatorics could help you with solution.

You are a renowned poster designer and painter. You are asked to provide 6 posters all having the same design each in 2 colors. Posters must all have a different color combination and you have the choice of 4 colors: red, blue, yellow, green. How many colors can you choose for each poster?

The answer is two since 4 choose 2 = 6. The combinations will be: {red, blue}, {red, yellow}, {red, green}, {blue, yellow}, {blue, green}, {yellow, green}.

Now same question but you have 35 posters to provide and 7 colors available. How many colors for each poster? If you take combinations 7 choose 2 you will get 21 with the above formula. But 21 schemes aren't enough for 35 posters. If you take 7 choose 5 combinations you will get 21 too. Fortunately if you take 7 choose 3 or 7 choose 4 combinations you get 35 and so each poster will have a different combination of 3 colors or 5 colors. You will take 3 colors because it's less expensive.

Hence the problem is:

knowing m (number of posters to design), knowing n (total number of available colors), let us search x (number of colors for each poster so that each poster has a unique combination of colors and the number of combinations is exactly the same as the number of posters). In other words you should create a function which takes m(NSNumber) and n(NSNumber) and returns x(NSNumber).

Some more conditions: m >= 0 and n > 0. If many x are solutions give as result the smallest x. It can happen that when m is given at random there are no x satisfying equation (1) then return nil.

Here's the examples :

@[@6, @4] would return @2
@[@4, @4] would return @1
@[@4, @2] would return nil