MATH 10B, SPRING 2017, QUIZ 1

(1) How many 4 digit numbers are there which contain only even digits?

(2) Suppose you have 10 colors of paint. You can also combine these colors to form new colors. Each combination of the ten original colors gives a different color of paint, but proportions don't matter (so a little green mixed with a lot of red gives the same color as a little red mixed with a lot of green). How many colors can you create, including the original ten colors? (By the way, for the purposes of this problem the absence of paint does not count as a color.)