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1. How many 10 -digit binary strings are there that do not have exactly four 1 's? Show and explain your work fully.

Name: $\qquad$

1. How many positive 10 -digit integers contain no 0 's and exactly three 6 's? Show and explain your work fully.

- February 21, 2023

1. This problem concerns lists of length 6 made from the letters $A, B, C, D, E, F$, without repetition. How many such lists are there for which the $D$ occurs before the $A$ ? Show and explain your work.
2. How many 10-digit binary strings are there that have exactly four 1's or exactly five 1's? Show and explain your work fully.
