

How many 4-digit ~~codes~~ codes can be formed if

(1) There are no restrictions?

10	10	10	10
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 $\Rightarrow 10^4 = \underline{\underline{10,000}}$

(2) We cannot use a zero?

9	9	9	9
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 $\Rightarrow 9^4 = \underline{\underline{6561}}$

(3) We cannot have a leading zero?

Not zero!
↓

9	10	10	10
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 $\Rightarrow 9 \cdot 10^3 = \underline{\underline{9000}}$

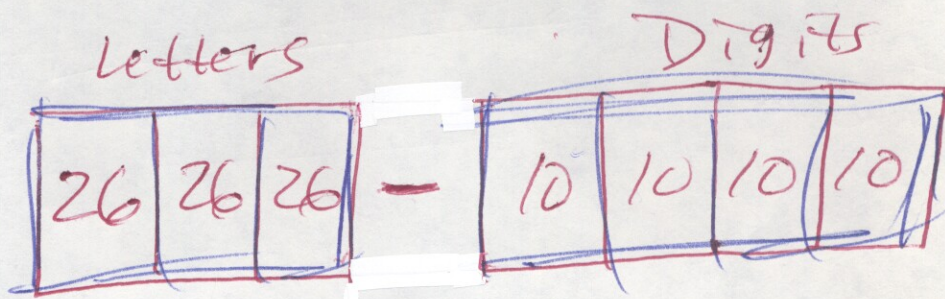
(4) We cannot repeat a digit?

10	9	8	7
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 $\Rightarrow 10 \cdot 9 \cdot 8 \cdot 7 = \underline{\underline{5040}}$

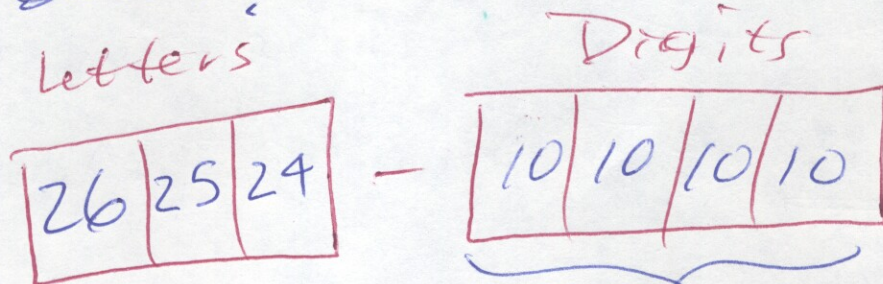
How many different NYS
License plates are possible
if they are;

3 letters followed & digits?



$$\Rightarrow 26^3 \cdot 10^4 = \underline{\underline{175,760,000}}$$

What if we cannot repeat
a letter AND cannot have
all zeros?



10^4 (allowing
all 4 zeros)

- 1 (All zeros)

9999

$$\Rightarrow 26 \cdot 25 \cdot 24 \cdot 9999 = \underline{\underline{155,984,400}}$$