Week 6: Counting

1. I have a 6-sided die. I roll it 5 times. ABCDE 5!

(a) How many sequences of 5 numbers?

6^5 _____ 6 choices per spot 12113 51543 11213, 55143, 65423, ...

(b) How many sequences like 66666? 1

like $x_1 x_2 x_3 x_4 x_5$, $x_i \in \{5,6\}$? 2^5

_____ 55565 ✓ 66656 ✓ 46654 X

(c) How many contain at least one 3?

$6^5 - 5^5 = 4651$ 31333 ✓ 66653 ✓ 12456 X

$5 \cdot 6^4 = 5 \cdot 1296 = 6480$

_____ 3
33333