

APHY / ICSI / CINP 451/551
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Fall 2026
EXERCISE #4 (NOT GRADED)

This is an EXERCISE. It will **not be graded**. The solution will be posted after the Due Date.

ROLLING 6's.

a. Imagine that you have **one set of 6** six-sided dice. Calculate the probability that you will **roll at least one 6** if you roll all six dice.

b. Consider that you have **two sets of 6** six-sided dice (12 dice total). Calculate the probability that you will **roll at least two 6's** if you roll all 12 dice.

c. Consider that you have **three sets of 6** six-sided dice (18 dice total). Calculate the probability that you will **roll at least three 6's** if you roll all 18 dice.

d. Are the probabilities in parts a-c equal? Why or why not?

e) Write a SCRIPT that estimates the probability that one will roll:

- At least one six when rolling 6 six-sided dice.
- At least two sixes when rolling 12 six-sided dice.
- At least three sixes when rolling 18 six-sided dice.

Comment on the results and whether they make sense to you

(Make sure that you improve your INTUITION of what is going on!)