Chapter 6.5
Thursday, Week 5

Warmup

Simplify with Pascal's Identity: $\binom{10}{4} + \binom{10}{5} + \binom{11}{6}$.
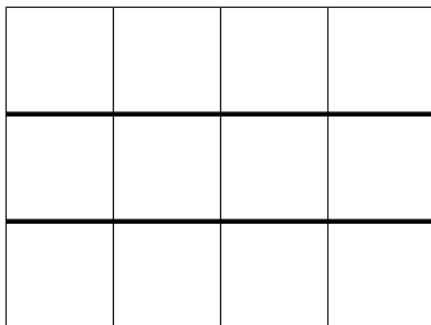
What is the x^3y^2 coefficient of $(x+y)^5$?

How many ways to rearrange the string $XXXYY$?
How many ways to rearrange the letters in FALAFEL?

What is the coefficient for the $A^2EF^2L^2$ term of $(A+E+F+L)^7$?

Stars and Bars

How many ways to get from the top left corner to the bottom right if you can only move down or to the right along the lines?

How many ways to buy 4 fruit if your choices are apples, bananas, and pears?

Objects and Boxes

How many ways to give 2 red hats and 3 blue hats and 4 green hats to 7 friends?

How many ways to put the friends in the hat boxes?

How many ways to buy 4 fruit if your choices are apples, bananas, and pears?

How many way to put the 4 balls in the 3 boxes?

Problem Constraints

How many ways to give 2 (identical) cookies to 3 (non-identical) friends if it is okay to give some friends no cookies?

How many ways to give 5 cookies to 3 friends if every friend must get a cookie?