

Quiz 5

1. $x_1 = \# \text{ CC}, x_2 = \# \text{ PB}, x_3 = \# \text{ R}, x_4 = \# \text{ S}$

Want # solns to $x_1 + x_2 + x_3 + x_4 = 14$
 $x_i \geq 0$

$\rightarrow \binom{17}{3}$

2. 10 cookies left, still 4 types \Rightarrow

$\binom{9}{3}$

3. 10 cookies left, 3 types $\Rightarrow \binom{12}{2}$

4. $\binom{13}{3} + \binom{13}{3} - \binom{9}{3}$

\uparrow
 $\geq 4 \text{ CC}$

\uparrow
 $\geq 4 \text{ PB}$

\downarrow
 $\geq 4 \text{ CC}$
 $\geq 4 \text{ PB}$

5. $\binom{13}{3} + \binom{13}{3} + \binom{13}{3} - \binom{9}{3} - \binom{9}{3} - \binom{9}{3} + \binom{5}{3}$
CC PB R CC+PB CCR PBR CC+PBR