M00 P1#4

Total = 5! = 120

Juntos: $\begin{cases} \underline{Black} - \underline{White} - (x4) - (x3) - (x2) - (x1) = 24 \\ \underline{White} - \underline{Black} - (x4) - (x3) - (x2) - (x1) = 24 \end{cases}$ → 48 maneras

Separados : 120 - 48 = $\boxed{72}$ maneras

N00 P1#19

Nº Monedas

1ᵉʳ Estudiante	1 (x6)	2 $(x\binom{6}{2}=15)$	3 $(x\binom{6}{3}=20)$	4 $(x\binom{6}{4}=15)$	5 $(x\binom{6}{5}=6)$
2º Estudiante	5 (x1)	4 (x1)	3 (x1)	2 (x1)	1 (x1)

Total = 6 + 15 + 20 + 15 + 6 = $\boxed{62}$ maneras

N01 P1#17

Sin ningún 3 : $\dfrac{8}{} \times \dfrac{9}{} \times \dfrac{9}{} \times \dfrac{9}{} = 5832$

Total : $\dfrac{9}{} \times \dfrac{10}{} \times \dfrac{10}{} \times \dfrac{10}{} = 9000$

Con algún 3 : 9000 - 5832 = $\boxed{3168}$ números

N03 P1#18

Total = $\binom{8}{4} = 70$

Formando parte los dos de más edad = $\binom{6}{2} = 15$ → 70 - 15 = $\boxed{55 \text{ maneras}}$

N07 P1#16

$\binom{9}{3} \times \binom{6}{3} \times \binom{3}{3} = 84 \times 20 \times 1 = \boxed{1680 \text{ maneras}}$

M09 T2-2 P2#8

Total = 5! = 120

Juntos = 2 × 4! = 48

Separados = 120 - 48 = $\boxed{72 \text{ maneras}}$

M12 T2-2 P2#4

a) $\underbrace{NIÑOS}_{15!} \times \underbrace{NIÑAS}_{10!} + \underbrace{NIÑAS}_{10!} \times \underbrace{NIÑOS}_{15!} = \boxed{9'49 \times 10^{18}}$ maneras

b) $\binom{15}{2} \times \binom{10}{3} = \boxed{12600 \text{ formas}}$

M13 T2-1 P2#8

a) $\underbrace{\boxed{0}\ \boxed{0}\ \boxed{0}\ \underbrace{\boxed{A}\boxed{A}\boxed{A}}_{3!}}_{4!}$ $4! \times 3! = \boxed{144 \text{ maneras}}$

b) $\boxed{A}\boxed{0}\boxed{A}\boxed{0}\boxed{A}\boxed{0}$ ó $\boxed{0}\boxed{A}\boxed{0}\boxed{A}\boxed{0}\boxed{A}$ ó $\boxed{A}\boxed{0}\boxed{0}\boxed{A}\boxed{0}\boxed{A}$ ó $\boxed{A}\boxed{0}\boxed{A}\boxed{0}\boxed{0}\boxed{A}$

$3 \times 3 \times 2 \times 2 \times 1 \times 1 + 3 \times 3 \times 2 \times 2 \times 1 \times 1 + 3 \times 3 \times 2 \times 2 \times 1 \times 1 + 3 \times 3 \times 2 \times 2 \times 1 \times 1 =$

$= \boxed{144 \text{ maneras}}$

M14 T2-1 P2#3

$\boxed{3}\ \boxed{2}\ \boxed{2}$

$\binom{7}{3} \times \binom{4}{2} \times \binom{2}{2} = \boxed{210 \text{ maneras}}$

N14 P1#10

a) $\boxed{\ }\boxed{\ }\boxed{\ }\boxed{5}$ ó $\boxed{\ }\boxed{\ }\boxed{\ }\boxed{6}$ ó $\boxed{\ }\boxed{\ }\boxed{\ }\boxed{7}$

$\quad\binom{4}{3} \qquad + \qquad \binom{5}{3} \qquad + \qquad \binom{6}{3} = \boxed{34 \text{ selecciones}}$

b) $\boxed{P}\boxed{P}\boxed{I}\boxed{I}$ ó $\boxed{P}\boxed{P}\boxed{P}\boxed{I}$ ó $\boxed{P}\boxed{P}\boxed{P}\boxed{P}$

$\binom{4}{2} \times \binom{5}{2} \quad + \quad \binom{4}{3} \times \binom{5}{1} \quad + \quad \binom{4}{4} = \boxed{81 \text{ selecc.}}$

a) $\binom{11}{4} = \boxed{330 \text{ grupos}}$

b) $\binom{5}{2} \times \binom{6}{2} = \boxed{150 \text{ grupos}}$

c) Grupos sin mujeres: $\binom{5}{4} = 5$

Grupos con alguna mujer $= 330 - 5 = \boxed{325 \text{ grupos}}$