20. 12. 2020.

1. 999 prostih brojeva:
mogući zarisci: 1, 3, 7, 9 => 4 mogućnosti
$999 = 4 \cdot 249 + 3$ => postoji sigurno 250 brojeva koji zarisavaju istom čiflom
(isto vrijedi i za 998 brojeva)

2. 15 - mm 12 - fiz 16 - inf
$15! \cdot 12! \cdot 16! \cdot 3!$ → ukupan broj rasporeda gdje su knjige grupisane po predmetima
$15! 12! \cdot 16! \cdot 2 \cdot 2$ → mm i inf jedne do druge
=> $12! 16! \cdot 15! (3! - 4) = 12! 16! 15! \cdot 2$

3. 52 karte - 3 $= \binom{52}{3}$
S_1 - 3 crvene $= \binom{26}{3}$
S_2 - 3 slike $= \binom{12}{3}$
$S_1 S_2$ - 3 crvene slike $= \binom{6}{3}$
$\binom{52}{3} - \binom{26}{3} - \binom{12}{3} + \binom{6}{3}$

4.

4. $8a_{n+3} - 12a_{n+2} + 6a_{n+1} - a_n = 0$

$8t^3 - 12t^2 + 6t - 1 = 0$

$(2t-1)^3 = 0 \Rightarrow t = \frac{1}{2}$

$a_n = (An^2 + Bn + C) \cdot 2^{-n}$

$a_0 = 0 = C$

$a_1 = 1 = (A + B + C)\frac{1}{2} \Rightarrow A + B = 2$

$a_2 = 4 = (4A + 2B + C) \cdot \frac{1}{4}$ $\quad 4A + 2B = 16$

$2A = 12 \quad A = 6$

$B = -4$

$C = 0$

$a_n = (6n^2 - 4n) \cdot 2^{-n} =$

$= 2^{-n+1} n(3n - 2)$