Lab 2 note:

1) a) $$\frac{C(500,4) \times C(300,0) \times C(200,0)}{C(1000,4)}$$

$$= 0.062125$$

b) 0.00798

c) 0.00156

Party A: 1 → 500 — 500th person in A

" B: 501 → 800 — 501st person B

" C: 801 → 1000

selecting without replacement!

40 children : {20 boys, 20 girls}

2) $n = 10$

Selecting 20 children randomly (without replacement)

$$\frac{C(20,10) \times C(20,10)}{C(40,20)} = \boxed{0.24763}$$

$C(40,20)$ → no. of children for the selected group

b) $\boxed{0.11242}$.

boys : $1 \to 2n$

girls : $2n+1 \to 4n$

3) $P(\text{winning lottery}) = \frac{1}{((20,4)}$

$= 0.0002064$

For $i = 1$ to 1000000

- generate 4 random numbers in the range [1,20]
  (Your chosen no.)
- generate 4 random numbers "
  (drawing no.)

if drawing no = your chosen no.

count = count + 1

$$\text{Prob.} = \frac{\text{count}}{\text{total no. of experiment}}$$

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