A genetically isolated populations was founded by 230 people. Number of people in subsequent generations were 400, 700, 1500, 3000, 6000, 12000 and currently population comprises 20000 people.

What is the chance that an allele which was present in one chromosome in founder generation is still present in current population?

- Pr(fixed)=1-Pr(lost)
- Pr(fixed)=1- exp(-4*n*p0/t)
- P0= k/2n
- P0=1/(2*230)
- P0=1/460
- N=?

- 1/Ne= 1/Ngen* Σ 1/Ni
- 1/Ne= 1/8 * (1/230 + 1/400 + 1/700 + 1/1500 + 1/3000 + 1/6000 + 1/12000 + 1/20000)
- 1/Ne = 0.001197
- Ne=835.39

- Pr(fixed)=1- exp(-4*n*p0/t)

- Pr(fixed)=1- exp((-4*835*1/460)/8)
- Pr(fixed)=1-exp(-7.26/8)
- Pr(fixed)=1-0.403
- Pr(fixed)=0.596

Q.3 Mendel's Peas

- K = number of green plants
- $P(k \geq 290)=1-p(k \leq 289)$
- $= 1-\Phi ((289+0.5-250)/(1000*025*0.75)\ ^{\wedge}1/2$
- $=1-\Phi (39.5/13.69)$
- $=1-0.9986$
- $=0.0014$