CSE 280A
Assignment 3
List 7
Andrey Bzikadze

(3) I used wrapper that was published on Piazza, got rid of selection, and simulated samples from each populations: EAS, EUR, AFR.
The full command is on the next page with comments.

Here I just explain the normalization of all parameters.

- $N_e = N_A = 7310$ // we could use whatever normalization here
- AFR - 1st; EUR - 2nd; EAS - 3rd.
- migration rates:

	1	2	3
1	·	m_{AfEu}	m_{AfAs}
2	·	·	m_{EuAs}
3	·	·	·

and multipl. $4N_e$

- generation length = 25 years.
- all times are normalized by $4Ne \cdot gen\ len$.
- we don't need any 'mode' (in script) as we are not simulating selection.
- growth rates are normalized by $4Ne$ (multipl.)

$$\Rightarrow \alpha_{AS} = r_{AS} \cdot 4 \cdot Ne$$
$$\alpha_{EU} = r_{EU} \cdot 4 \cdot Ne$$

- At zero level we need to calculate initial ~~p~~population sizes for EAS & EUR.

$$N_2 = N_{EUR} = N_{EU0} \cdot e^{\alpha_{EU} \cdot T_1}$$
$$N_3 = N_{EAS} = N_{AS0} \cdot e^{\alpha_{AS} \cdot T_1}$$

where T_1 is normalized T_{EuAs}.

- θ, ρ are set up in script according to some papers and are considerably criptic.

List 8 contains command run.
List 9-11 — AFS for AFR, EUR and EAS.
// -I 3 200 0 0 0
for first sample etc..