EE-305 PROJECT RESULTS

GROUP-09

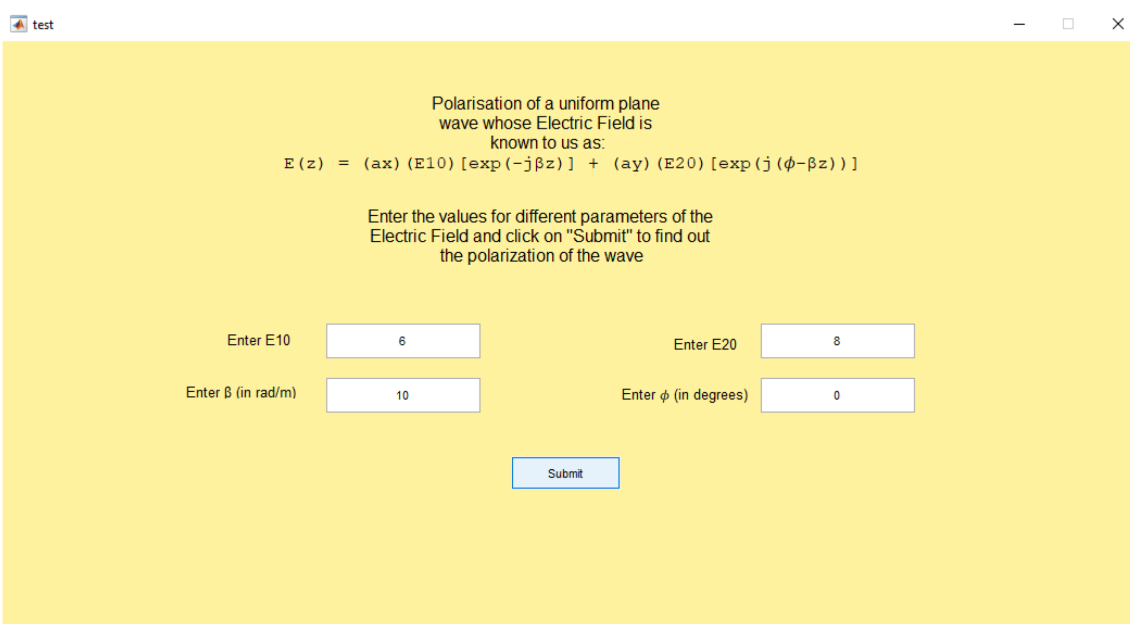
Kaparthi Divya; Roll no.190002028
Goli Teja Sree; Roll no.190002023
Amogh Dixit; Roll no. 190002004
Bhavyash Gautam; Roll no. 190002013

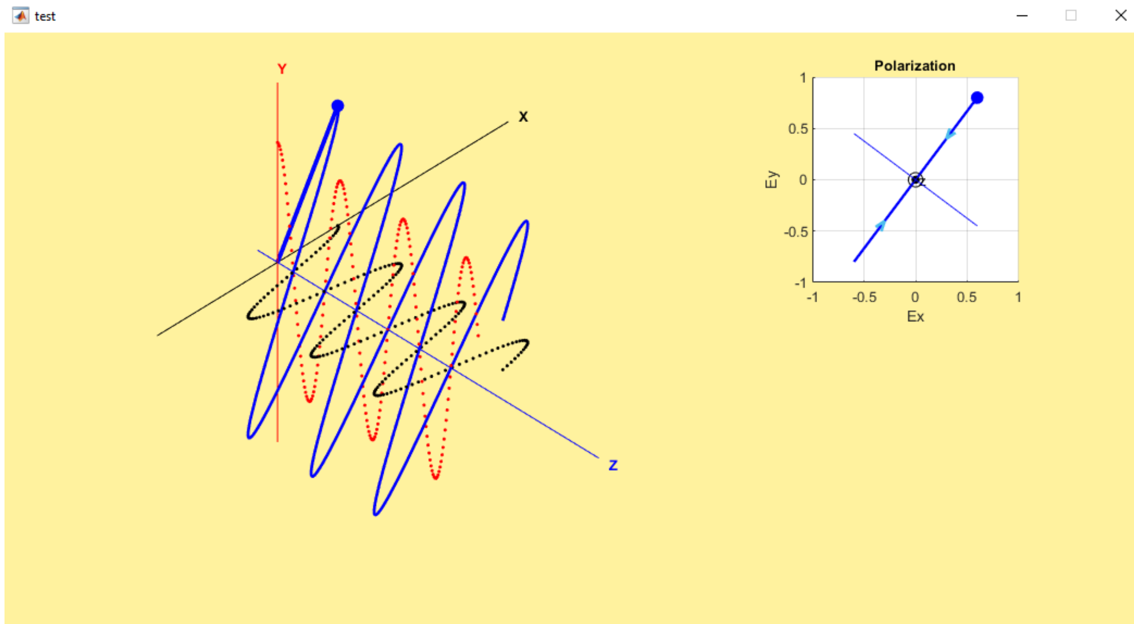
PROJECT DESCRIPTION: Determine the polarisation (linear/circular/elliptical, and right-/left-handed) of a uniform plane wave, whose electric field is expressed in phasor notation as $\vec{E}(z,t) = \widehat{a}_x E_{10} e^{-j\beta z} + \widehat{a}_y E_{20} e^{-j\beta z} e^{j\phi}$. Plot the instantaneous electric field intensity E(z,t). Assume a lossless medium (α = 0). The parameter values E_{10}, E_{20}, β, ϕ will be provided from the user-end.

PROJECT RESULT: Every wave can be either linearly polarised or elliptically (or circularly) polarised. Elliptically polarised waves can be further classified into (i) right-handed elliptically polarised and (ii) left-handed elliptically polarized.

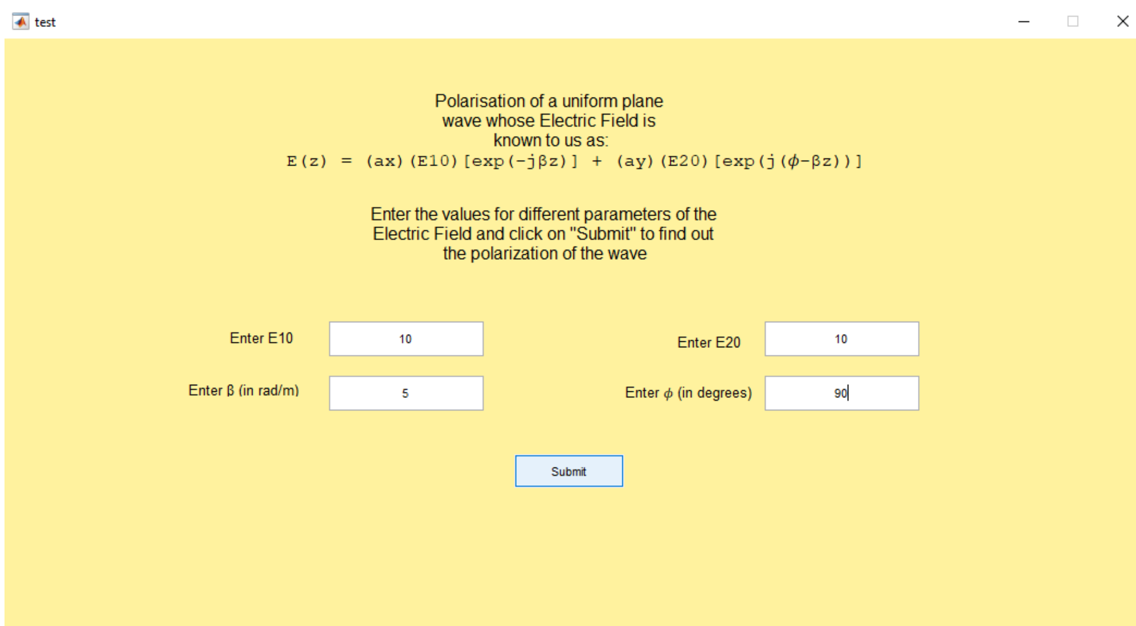
Following images correspond to the results obtained for different values of the input parameters E_{10}, E_{20}, β and ϕ.

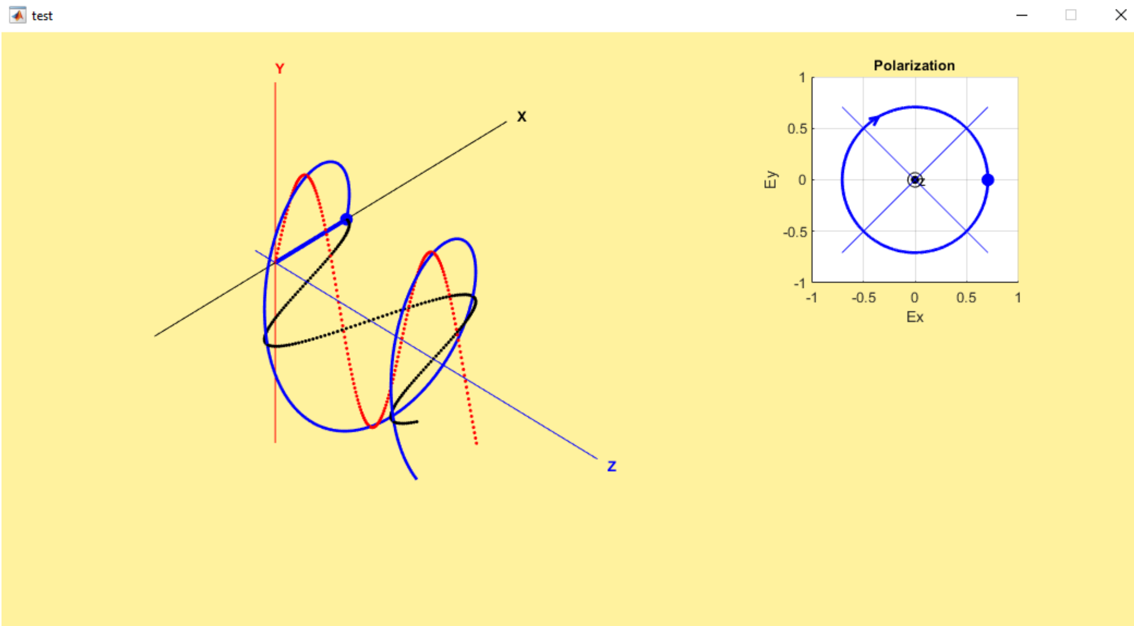
1. **Linearly Polarised Electric Field Wave**



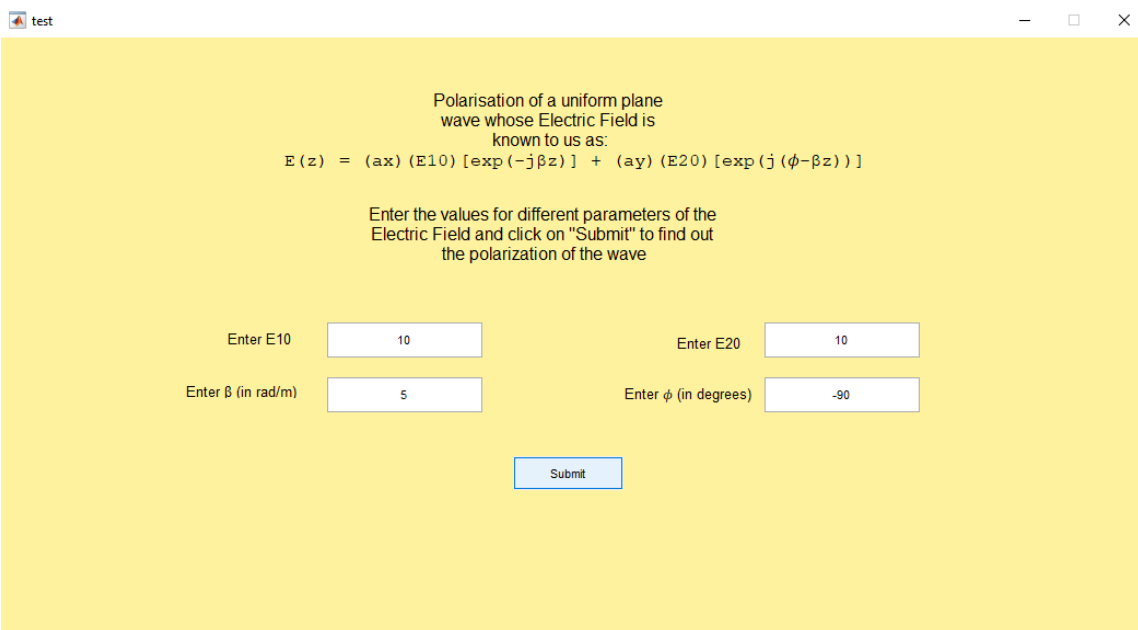


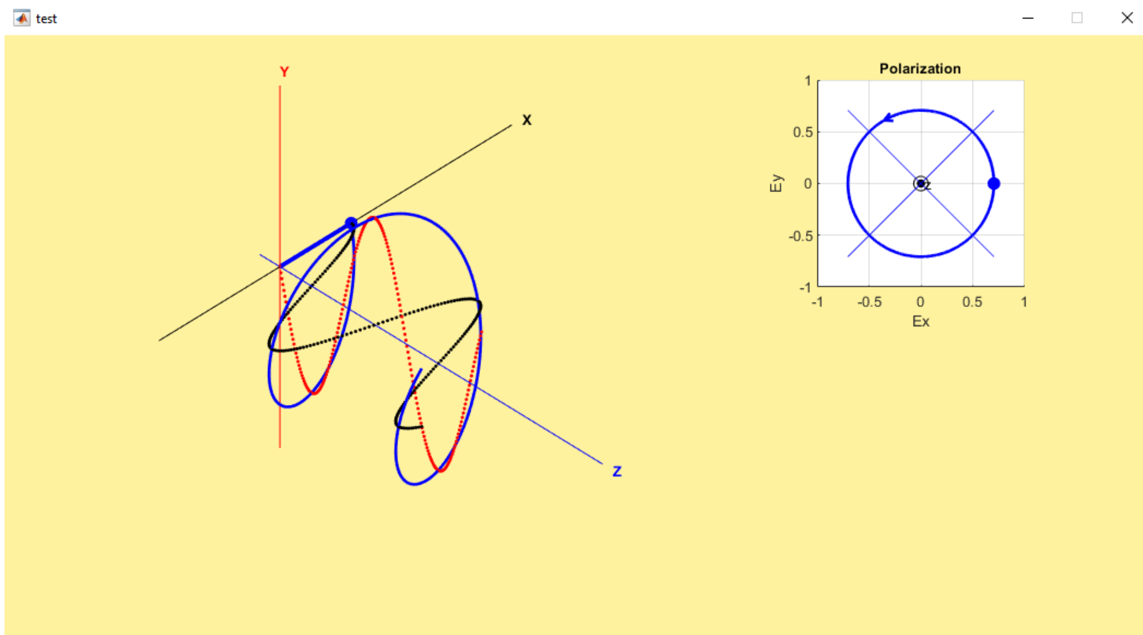
2. Left-handed Circularly Polarised Electric Field Wave



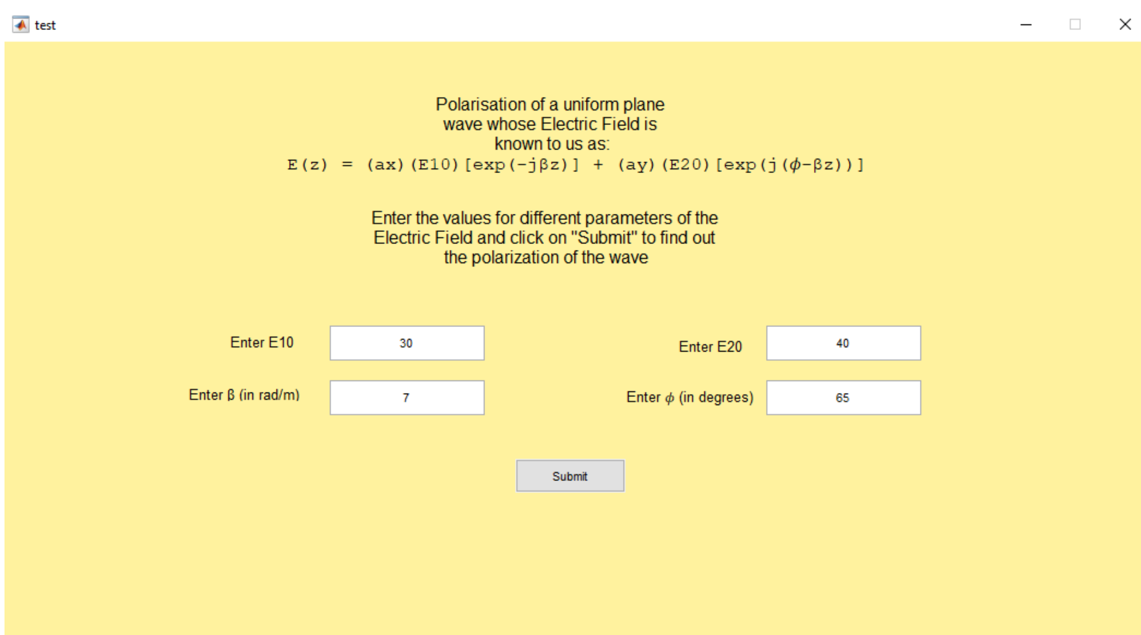


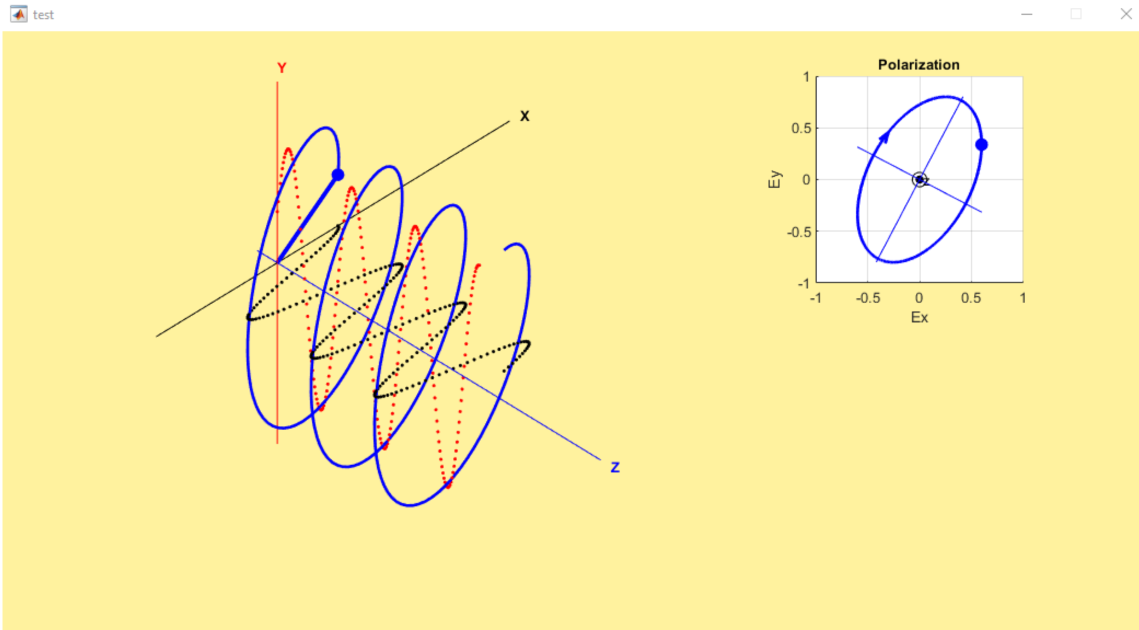
3. Right-handed Circularly Polarised Electric Field Wave



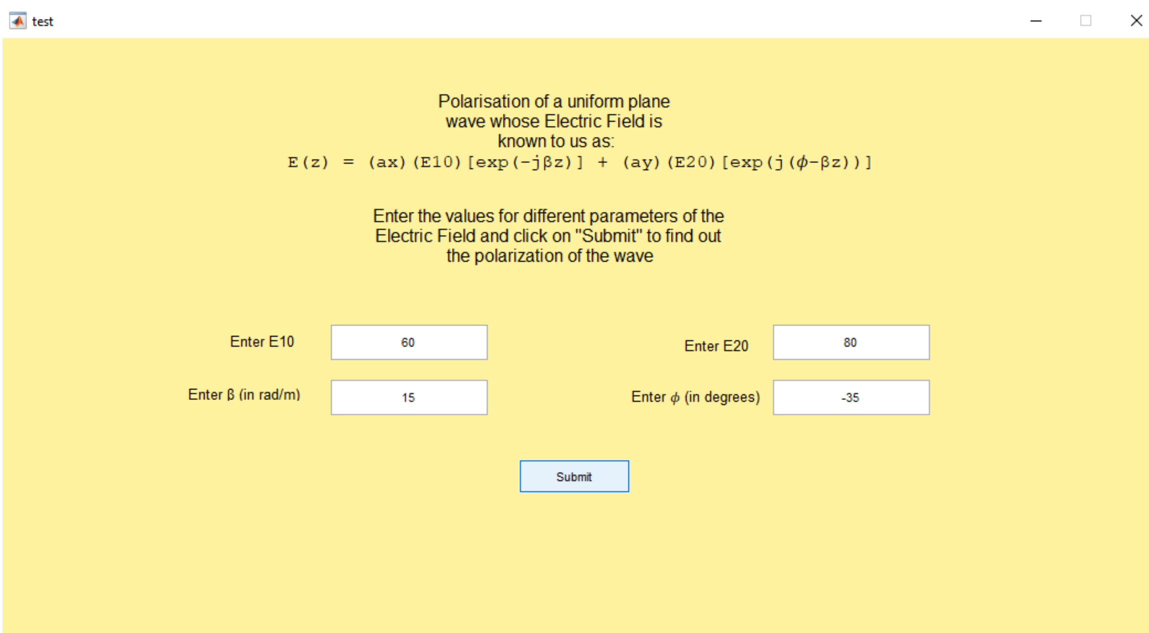


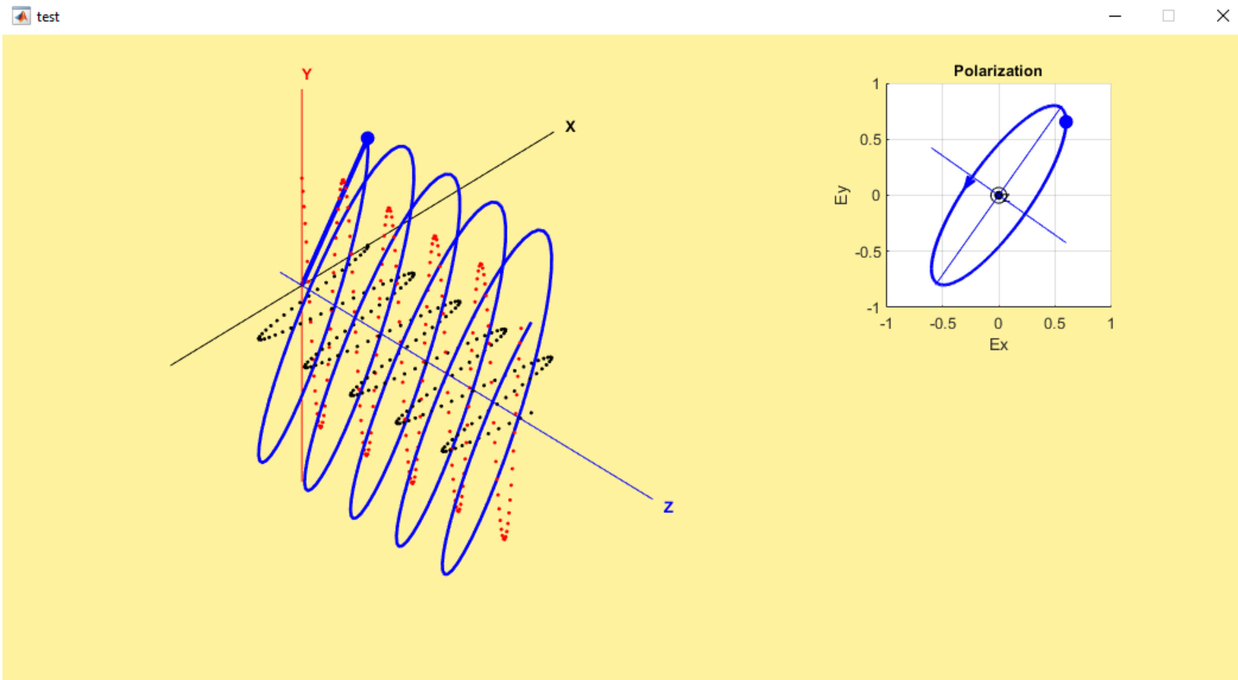
4. Left-handed Elliptically Polarised Electric Field Wave





5. Right-handed Elliptically Polarised Electric Field Wave




test
Y
X
Z
Polarization
Ey
Ex
1
0.5
0
-0.5
-1
-1
-0.5
0
0.5
1