

$$x = A_1 \cos(\omega_1 t - \delta_1) b_1 + A_2 \cos(\omega_2 t - \delta_2) b_2 + \cos(2t) b_3,$$

supporting your two amplitude-phase-shift calculations by clearly labeled diagrams, where b_3 is the vector coefficient of $\cos(2t)$ that corresponds to the particular solution in response to the driving force.

i) On the grid provided plot the two eigenvectors and the new coordinate axes (label everything), and then the 6 vectors $\pm A_1 b_1, \pm A_2 b_2, \pm b_3$

and finally the parallelogram whose sides correspond to $y_1 = \pm A_1, y_2 = \pm A_2$. [This parallelogram confines the homogeneous solution.]

