Meyer ch4: 4.7.8, 4.7.13; HW LEC #05

Also: Consider the change of basis procedure, with original basis $B_V = \{v_1, \ldots, v_N\}$ and new basis $B_Z = \{z_1, \ldots, z_N\}$. Depending on how we express, OLD = f(new), or new = g(old), we get different expressions for the change of coordinates equation, in terms of the matrix that performs the change. The same applies for our choice of indexes in the summations, i.e., $v = \sum_i \alpha_i v_i$ & $z = \sum_j \beta_j z_j$; or $v = \sum_j \alpha_j v_j$ and $z = \sum_i \beta_i z_i$. Find all the four different possible equations for the change of coordinates matrices, relating all the matrices. Recall that we adopt <u>column vectors</u> to collect the coordinates of a vector over any given basis.