

Assignment #2

Remarks on exercise #4

We are given $\bar{d}_0 = [x, y, z]$

We determine $\bar{d}_1 = [(x + \frac{1}{2}y)^2, \text{---}, \text{---}]$

Prior to calculating \bar{d}_2 we make a clever change of variables as follows:

$$\alpha = (x + \frac{1}{2}y), \quad \beta = (z + \frac{1}{2}y)$$

$$\text{So, } \bar{d}_1 = [\alpha^2, \text{---}, \text{---}]$$

We now find \bar{d}_2 by applying the procedure used to determine \bar{d}_1 .

We note that we can simplify the coordinates of \bar{d}_2 by realizing that $\alpha^2 + 2\alpha\beta + \beta^2 = (\alpha + \beta)^2 = 1$.

The desired results follow easily.