Proofs

Consider data for variable x = x_1, x_2, . . . , x_n. We use x to denote the sample mean of x, and s_x is the sample standard deviation of x.

Part I

For each of the following three transformations derive (a) the sample mean z, and (b) the sample standard deviation s_z.

1. Centering

$z_i = (x_i - \text{x})$