1.

(a)10%

(b)1%

(c)1e-100

(d)The higher the dimension is, the smaller the order of magnitude of the proportion of data is that is used for any given test observation. Suppose the training set is close to evenly distributed, and the order of magnitude is approximately the same across different dimensions, then it's clear that there are fewer (of smaller order of magnitude) training observations "near" (with the same range in one dimension) any given point.

(e)

$p = 1$: 0.1

$p = 2$: $\sqrt{0.1} \approx 0.316$

$p = 100$: $\sqrt[100]{0.1} \approx 0.977$