

1. We assign values to items, that being colors to houses.

a) There are $n = 3$ items and $k = 4$ values. Thus there are $k^n = 4^3 = 64$ assignments or ways to paint the houses.

b) There are $5^5 = 3125$ ways to paint the houses.

c) There are $10^2 = 100$ ways to paint the houses.