

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.

2. There are 26 lower-case letter values, 26 upper-case letter values, and 10 number values that can be assigned to the positions in the password, the items. If the password is 8 characters long, then there are $(26+26+10)^8 = 62^8$ possible passwords. If the password is 9 long, then there are 62^9 , and if the password is 10 long then there are 62^{10} possible passwords. For passwords consisting of eight to ten of the allowed characters there are $62^8 + 62^9 + 62^{10}$ possible passwords.

3. Take each statement to be an item and