

# Quiz 10

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**This quiz does not count towards your grade.** It exists to simply gauge your understanding. Treat this as though it were a portion of your midterm or final exam. In this quiz, we will walk through creating schemes for secret sharing.

## 1 Dog-mania

In this problem we have two groups of dogs,  $A$  for Australian Terriers, and  $B$  for Beagles. There are  $n$  dog breeds,  $\{D_1, D_2, \dots, D_{n-1}\}$

1. Develop a scheme that requires  $x_1$  dogs from  $A$  and  $x_2$  dogs from  $B$ .
2. Develop a scheme that requires  $x_i$  from each of the  $n$  dog breeds.
3. Now, each dog breed elects  $o_i$  officials for a canine government. Construct a scheme that requires  $a_i$  officials from each breed; however, any 10 non-official dogs can get together to take the place of an official.