**Pigeonhole Principle**

Latest Submission Grade

100%

Question 1

Suppose there are 2n pigeons sitting in n holes. They are trying to minimize the number of pigeons in the most occupied pigeonhole. What is the best value they can achieve?

**1 / 1 point**

2

Correct

This is correct! Indeed, since the number of pigeons is greater than the number of holes, by pigeonhole principle there is a hole with at least two pigeons.

On the other hand, it is possible that each hole contains exactly two pigeons.

Question 2

Suppose there are 2n+1 pigeons sitting in n holes. They are trying to minimize the number of pigeons in the most occupied pigeonhole. What is the best value they can achieve?

**1 / 1 point**

3

Correct

This is correct! Indeed, if we can place pigeons in such a way that there are at most two pigeons in each pigeonhole, then summing up the number of pigeons over all pigeonholes we get at most 2n2n2n pigeons, which is a contradiction.