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Pigeonhole Principle

Quiz • 10 min

Review Learning Objectives

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

2

Try again

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.

2. Suppose there are $2n + 1$ pigeons sitting in n holes. They are trying to minimise 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 $2n$ pigeons, which is a contradiction.

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Due Jan 29, 11:59 PM IST

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