



PAINT GALLERY

By: Kayla, Kim, and Neil

Problem Statement

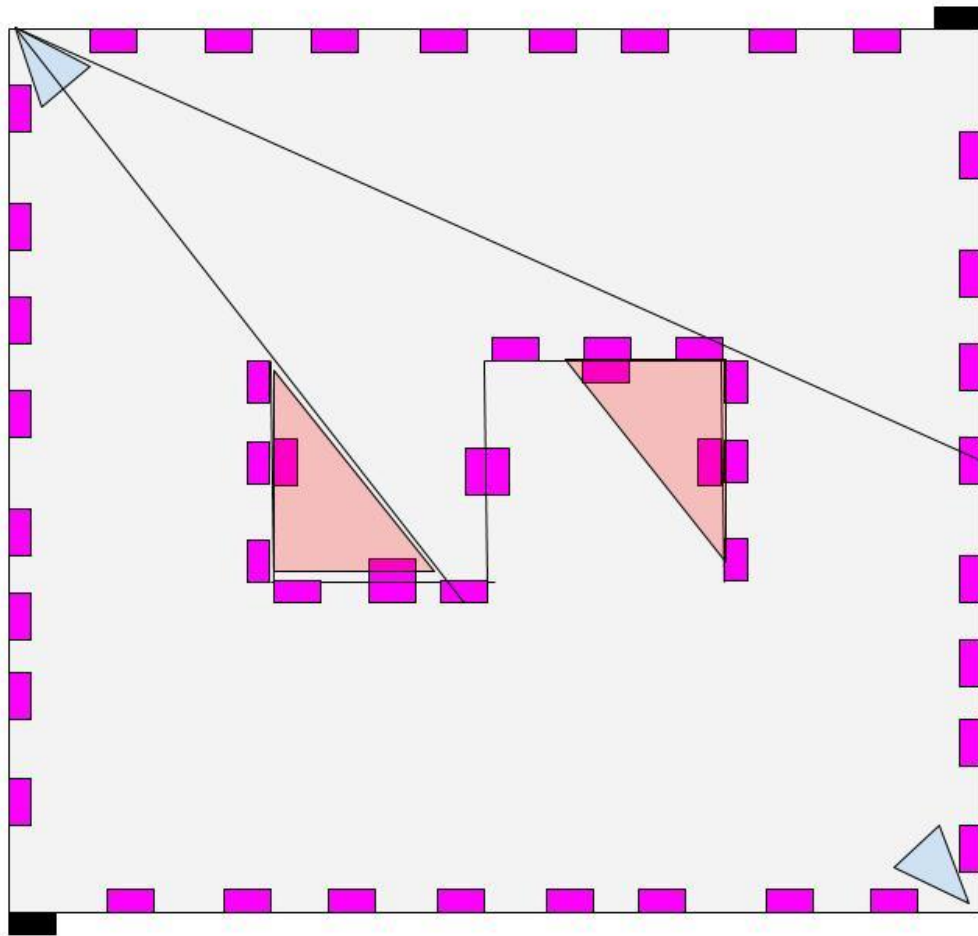
1. How can you quantify the safety of a design of an art gallery?
2. What is the best placement of interior walls to display the paintings in a room of the given conditions in order to optimize for safety of the paintings

Given information

- 50 paintings will be displayed
 - Each painting is approximately 1 foot by 1 foot
 - Paintings must be 2 feet from corners, and 2 feet from doors, and 1 foot from each other
- The two doors are in opposite corners of the gallery, and are each two feet
- The two security cameras are in the corners where the doors are not
 - The security cameras have a view scope of 30°
 - The security cameras take 20 seconds to complete one cycle
- Exterior walls are 4 meters tall, and interior walls are 3 meters tall

Assumptions

- You cannot see over walls
- It takes over a minute to steal a painting
- The safest layout has the most visibility, meaning that the greatest amount of paintings have some amount of coverage, regardless of how often they are seen



Quantifying the Safety of Designs

- A simple percentage of the paintings which can be seen was calculated thusly:
 - The number of paintings which could be seen by either camera was counted and then compared to the total number of paintings in the gallery. This ratio was made into a percentage which could be used as a "grade" of how safe the exhibit was
- See example designs.

Solutions + Analysis

- See paper.
- The solution found can hold 50 paintings with 100% visibility.

Other Solutions

- Put the paintings on the floor (Open floor plan!)
- Glass walls?
- Mirrors. Mirrors. Everywhere.