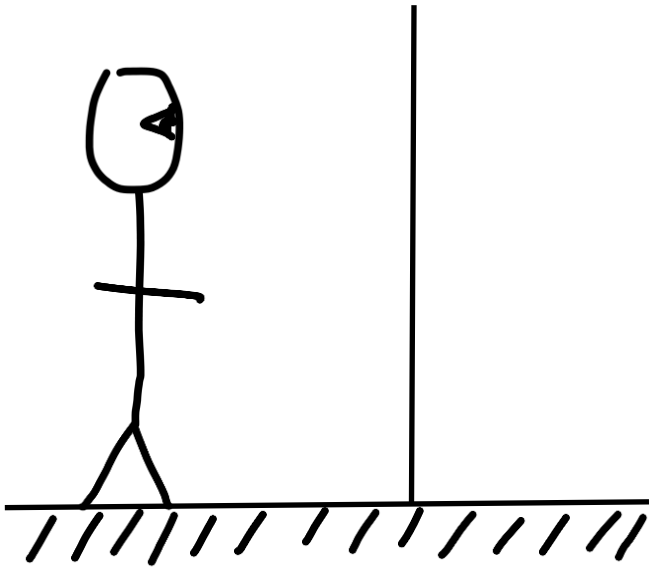
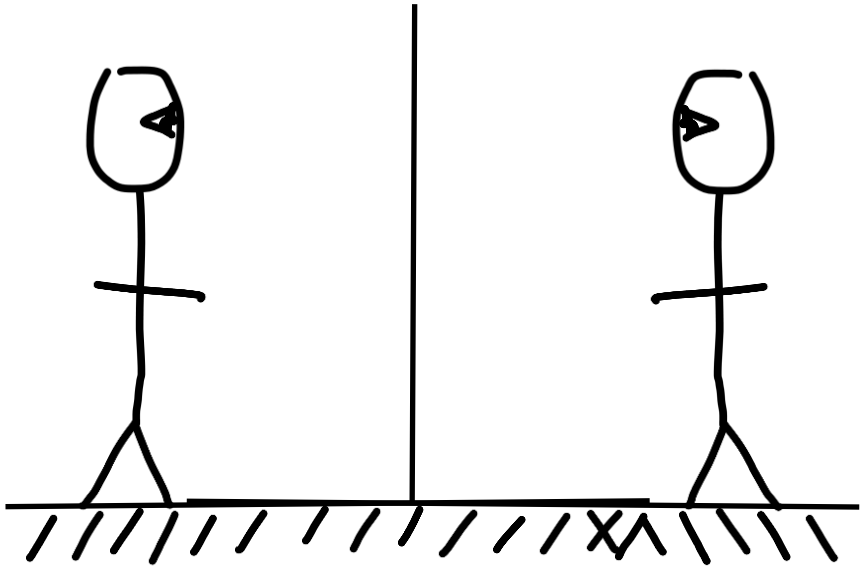
How mirror works

Two equivalent models of how a mirror works

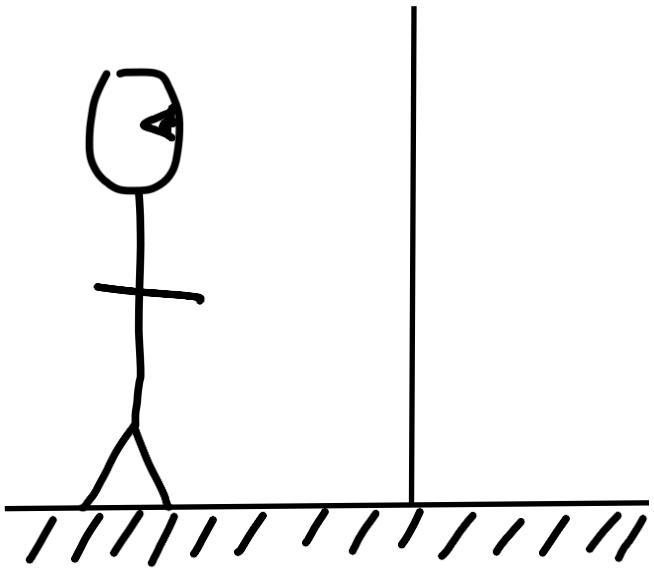


"Wow it's me in the mirror"



"My twin stands behind this window at an equal distance."

Two equivalent models



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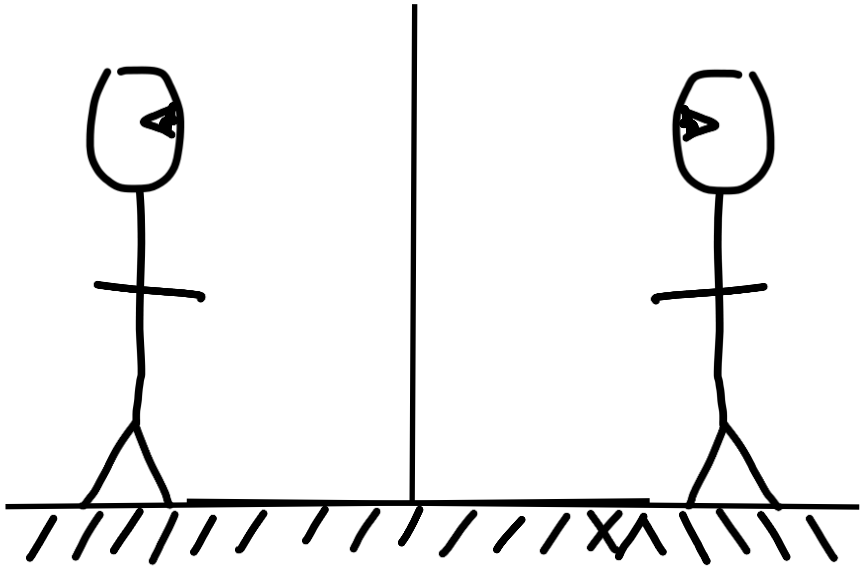

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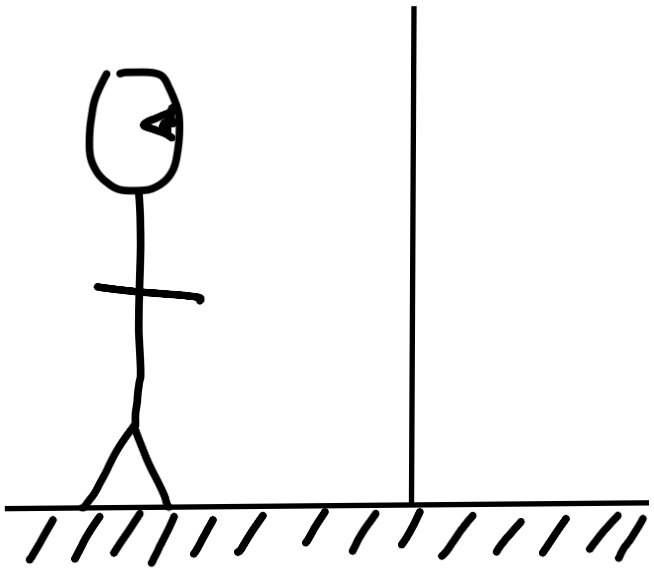
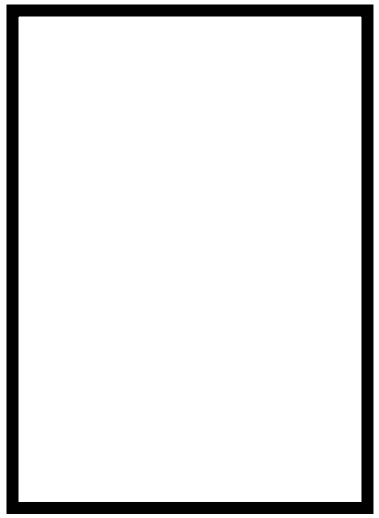
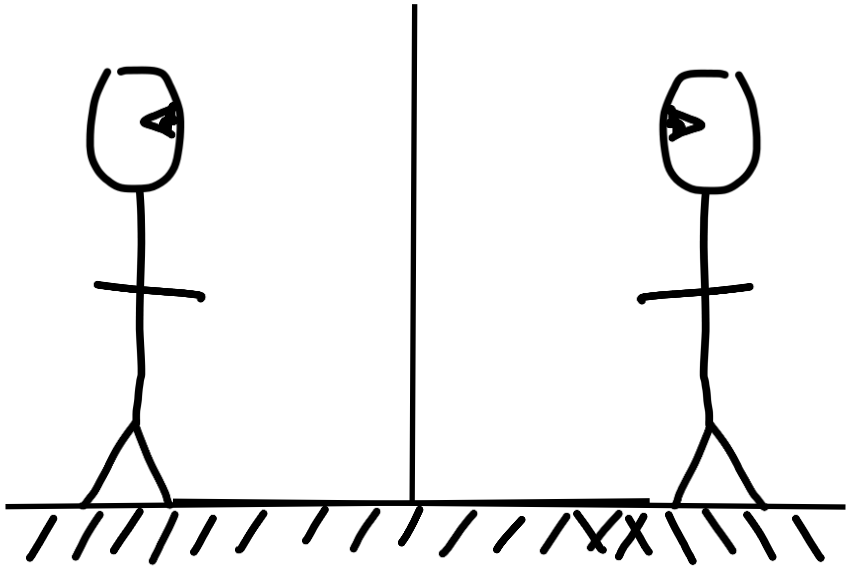
Two equivalent models





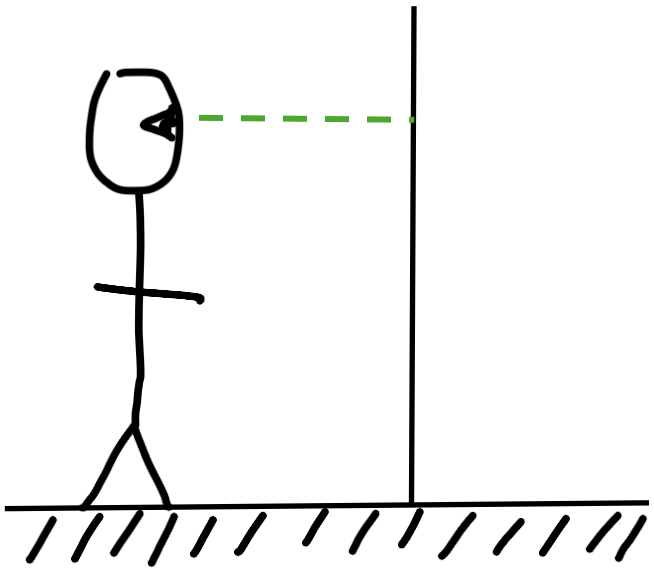
Mirror/window image

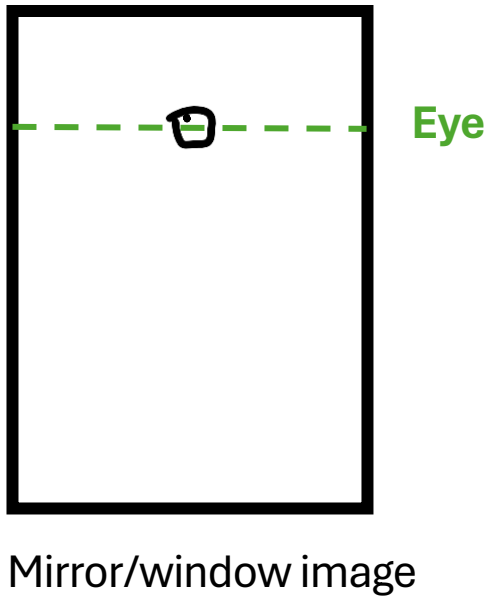


"Wow it's me in the mirror"

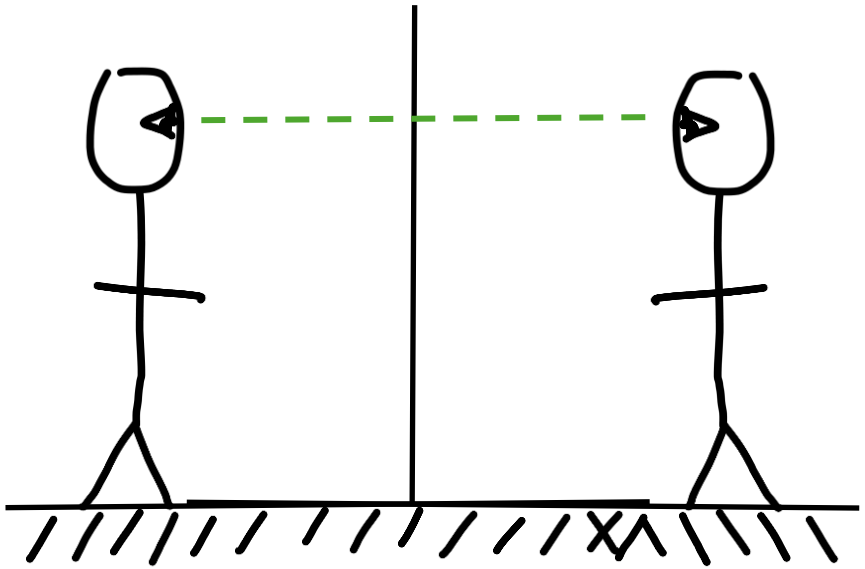
"My twin stands behind this window at an equal distance."

Two equivalent models





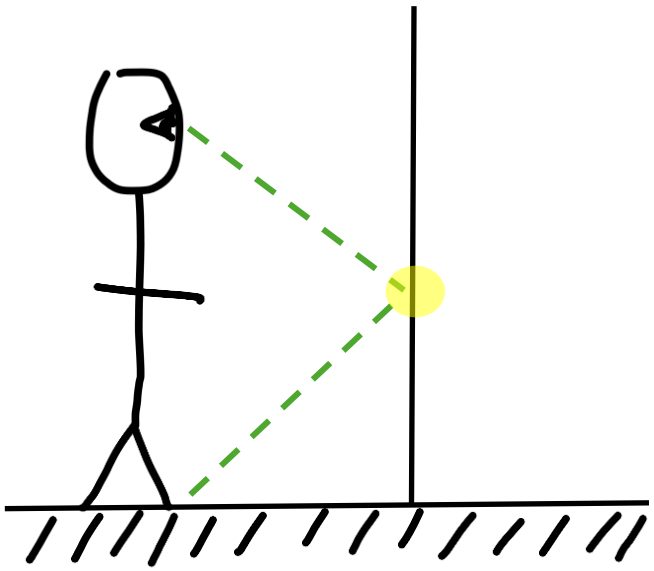
Mirror/window image

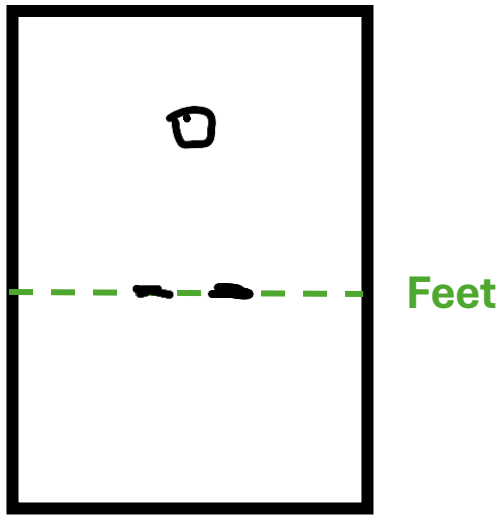


"Wow it's me in the mirror"

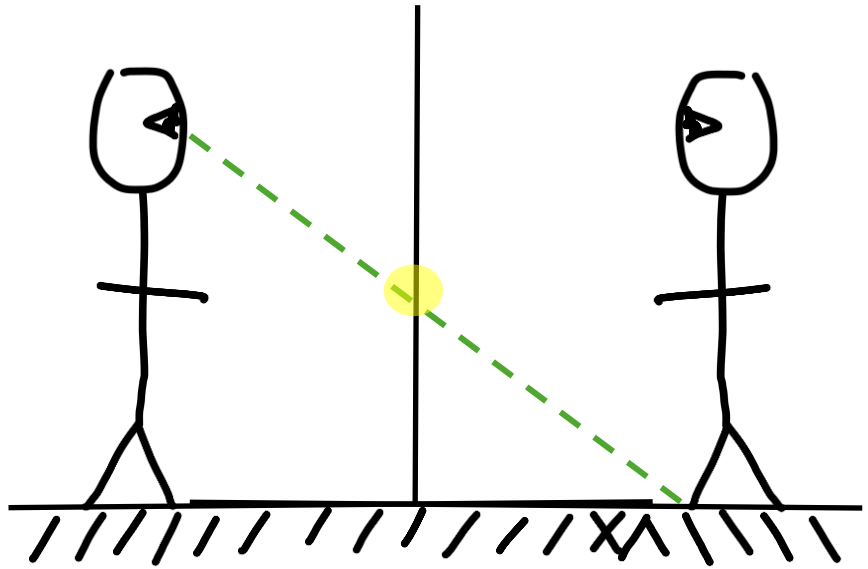
"My twin stands behind this window at an equal distance."

Two equivalent models





Mirror/window image



"Wow it's me in the mirror"

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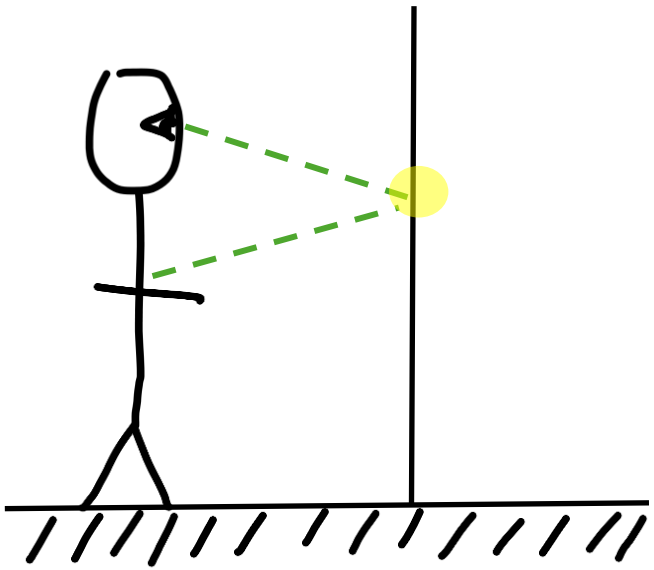
Two equivalent models



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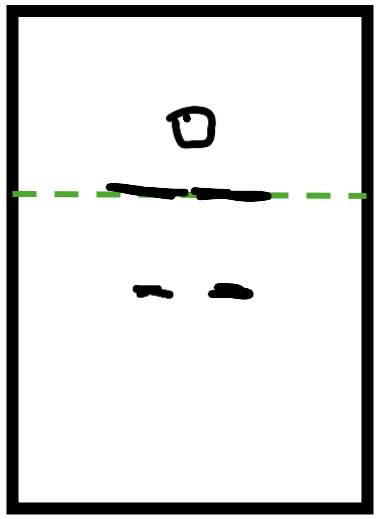
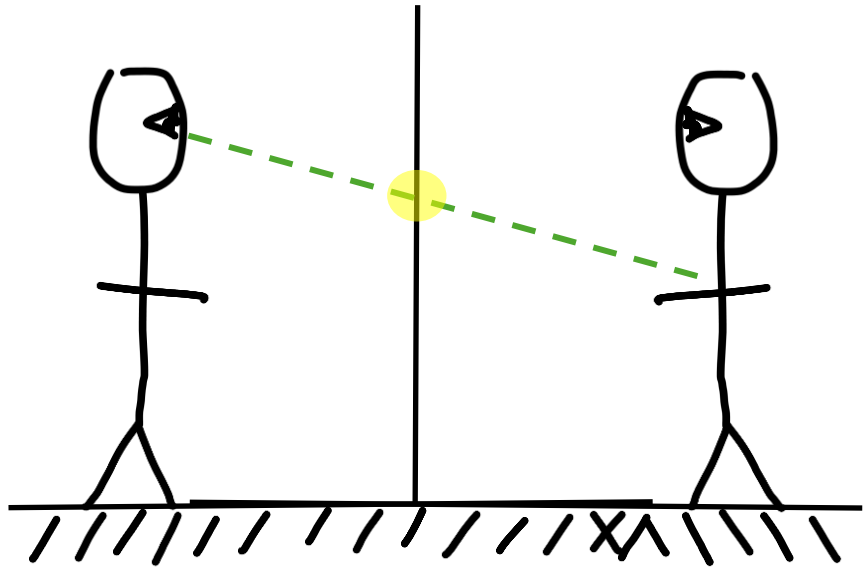
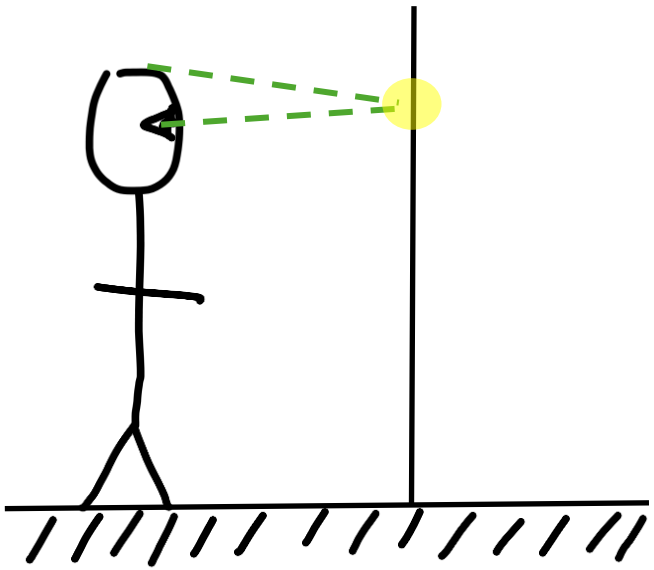


Mirror/window image

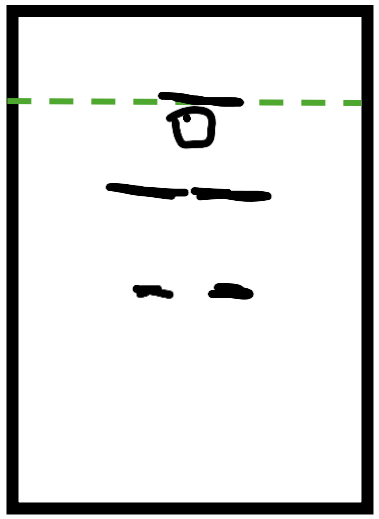


"My twin stands behind this window at an equal distance."

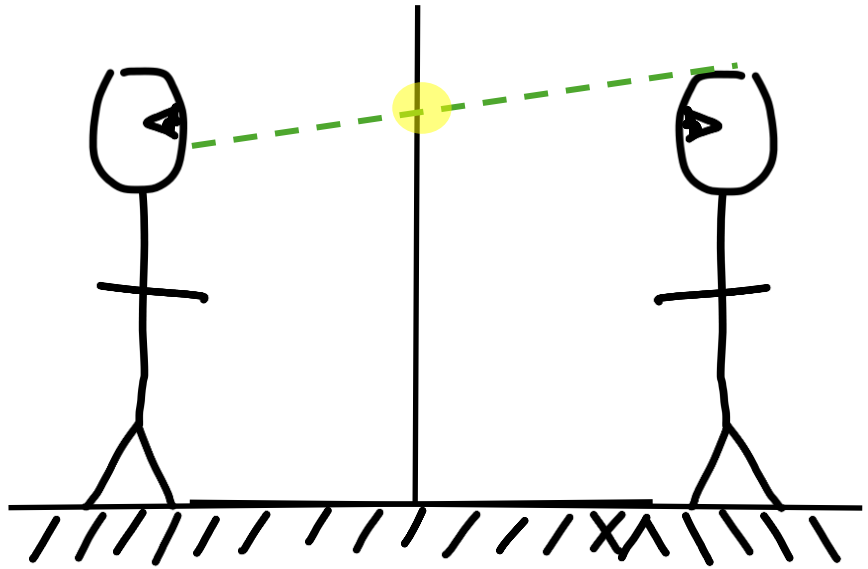
Two equivalent models



"Wow it's me in the mirror"



Mirror/window image



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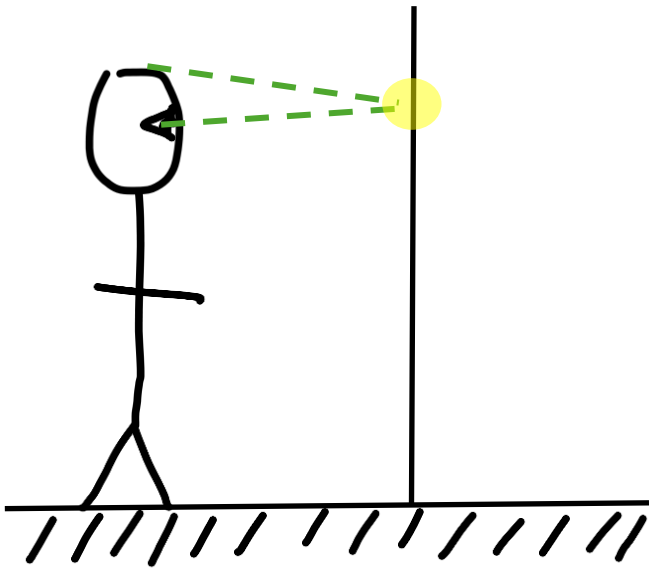
Two equivalent models



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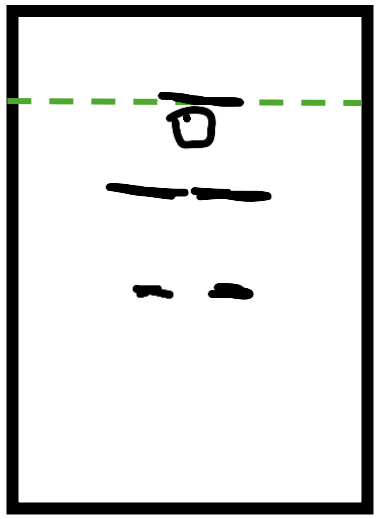
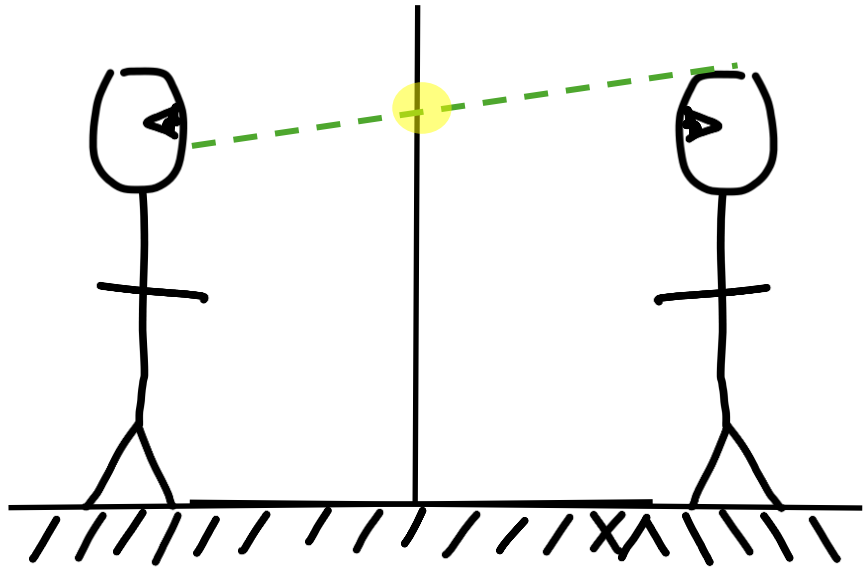


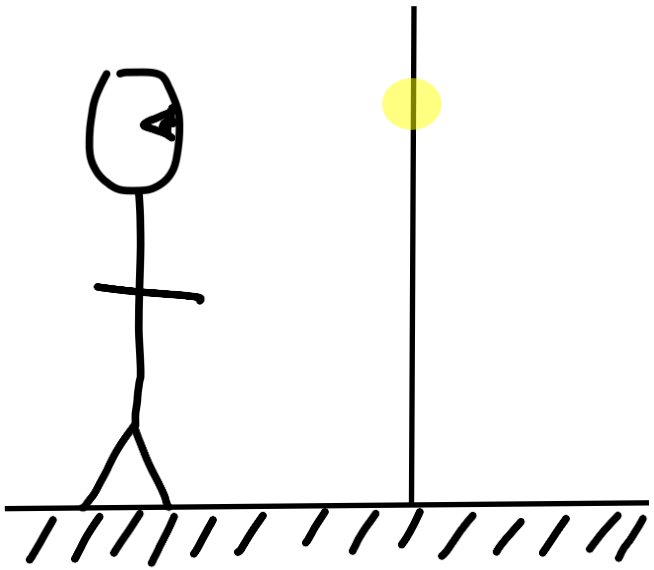
Mirror/window image



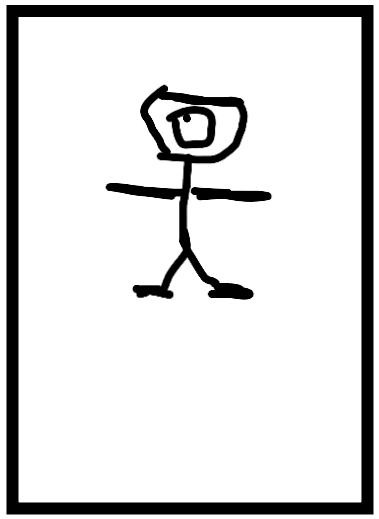
"My twin stands behind this window at an equal distance."

The mirror image of each body part is always midway up or down to the actual physical body part.

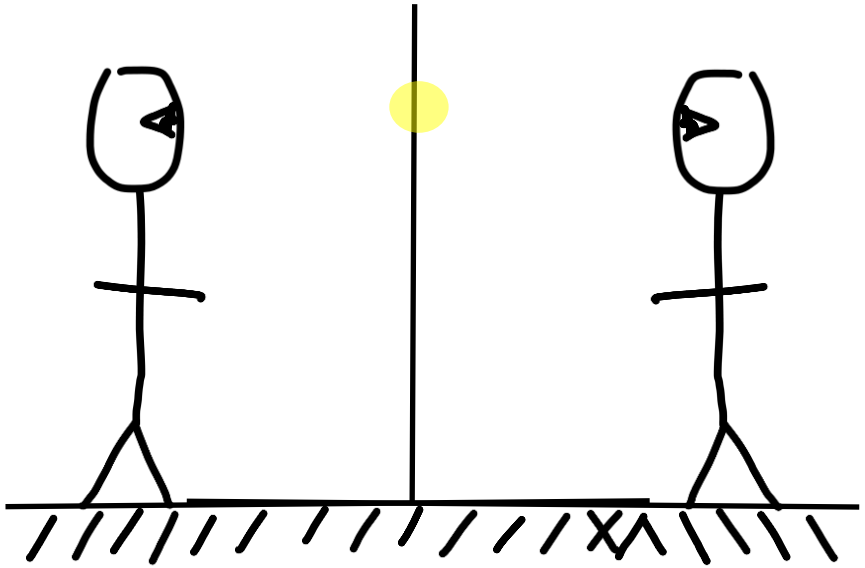
Two equivalent models



"Wow it's me in the mirror"



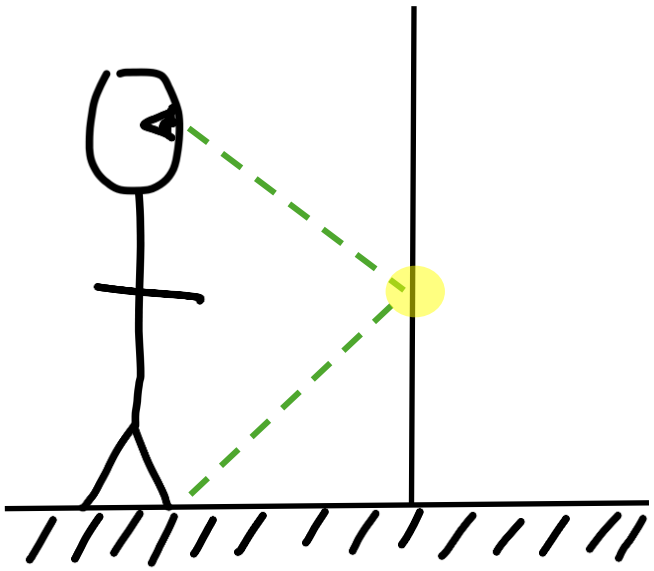
Mirror/window image

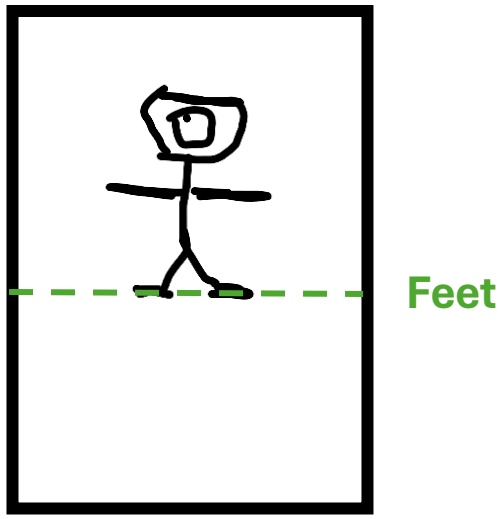


"My twin stands behind this window at an equal distance."

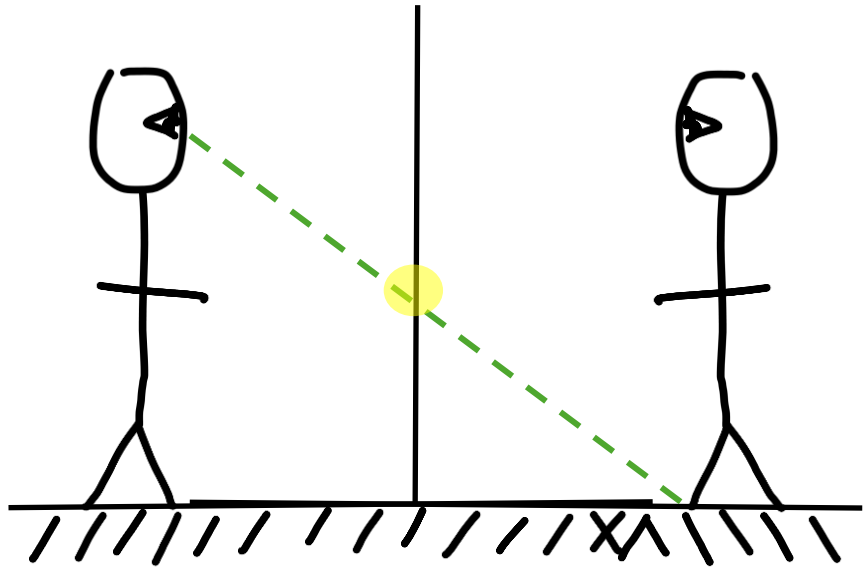
Rest of the picture

Two equivalent models





Mirror/window image

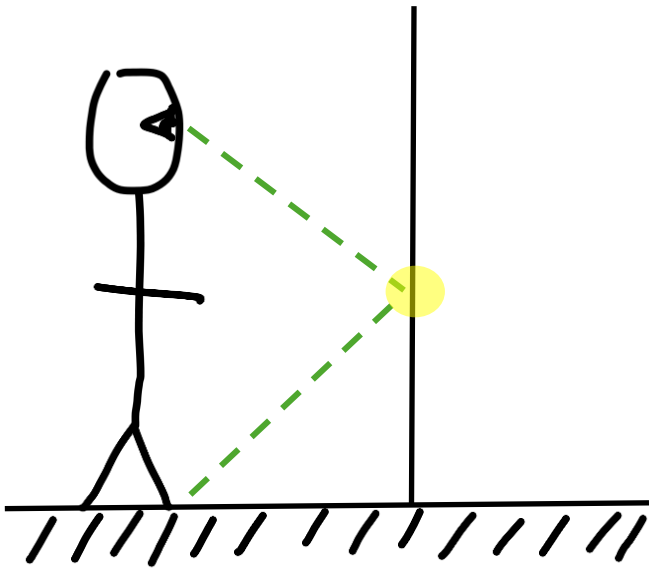


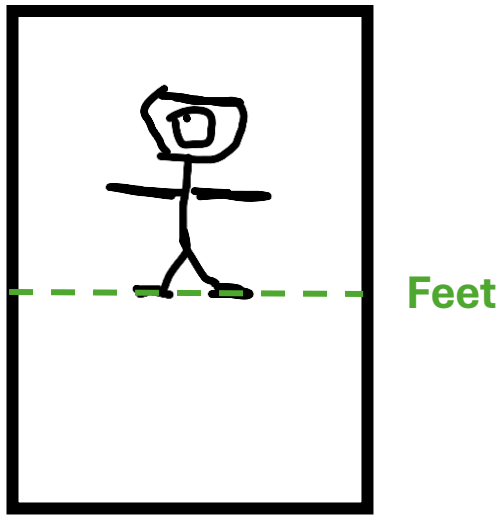
"Wow it's me in the mirror"

Boring Principle:
Reflect the light ray.
Scene remains unchanged.

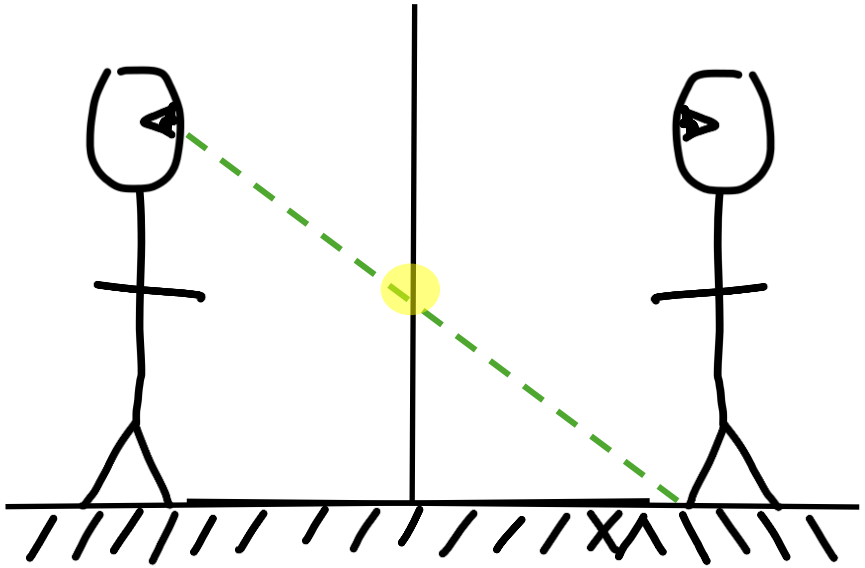
"My twin stands behind this window at an equal distance."

Two equivalent models





Mirror/window image



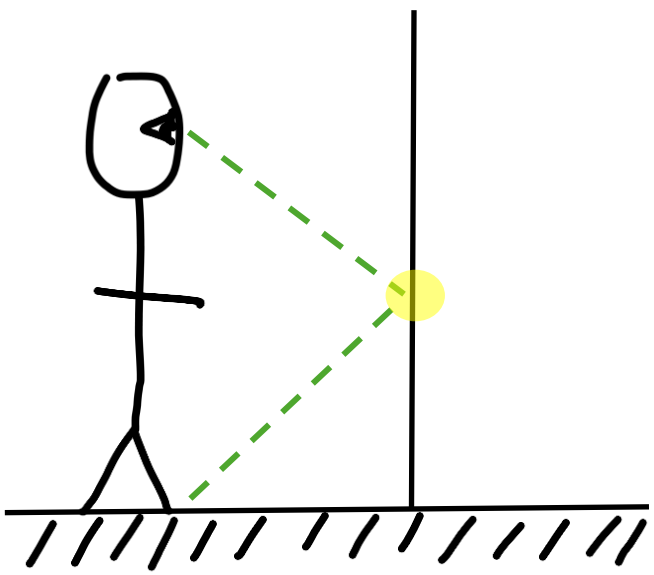
"Wow it's me in the mirror"

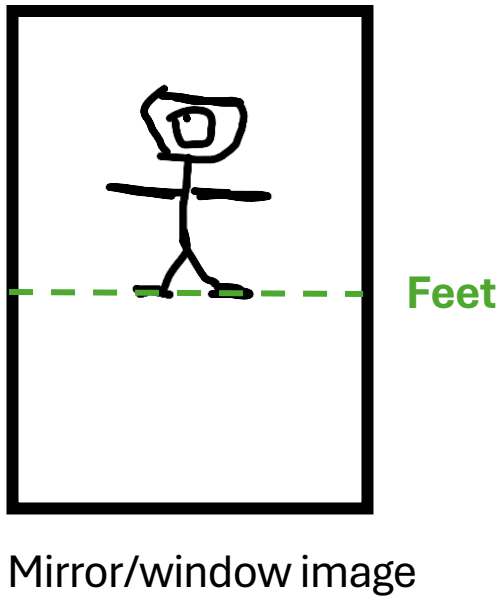
Boring Principle:
Reflect the light ray.
Scene remains unchanged.

"My twin stands behind this window at an equal distance."

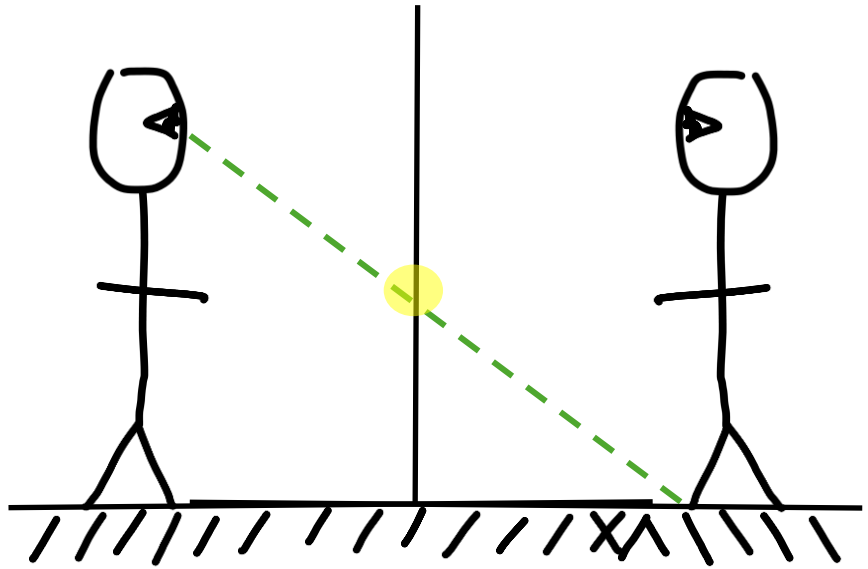
The Awesome Reflection Principle:
Don't reflect the light ray.
Reflect the scene across mirror instead.

Two equivalent models





Mirror/window image

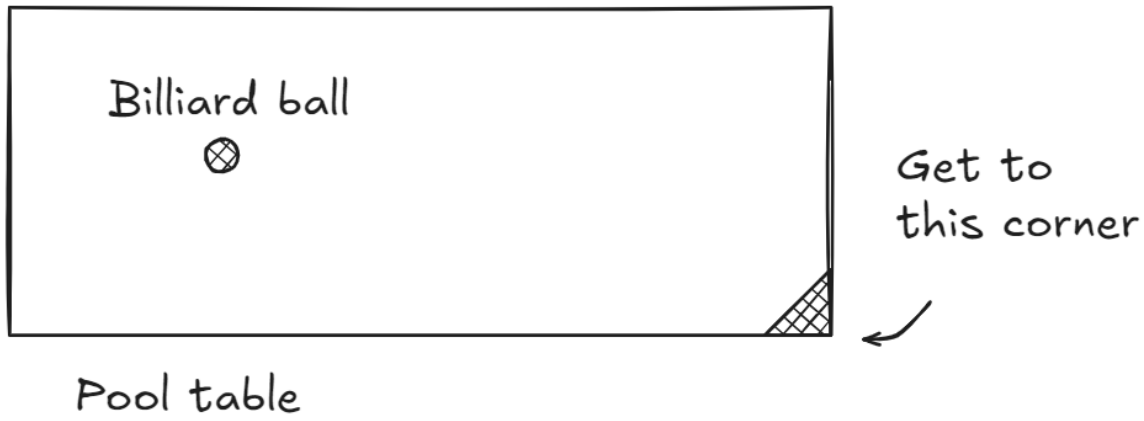


Reflection Principle.

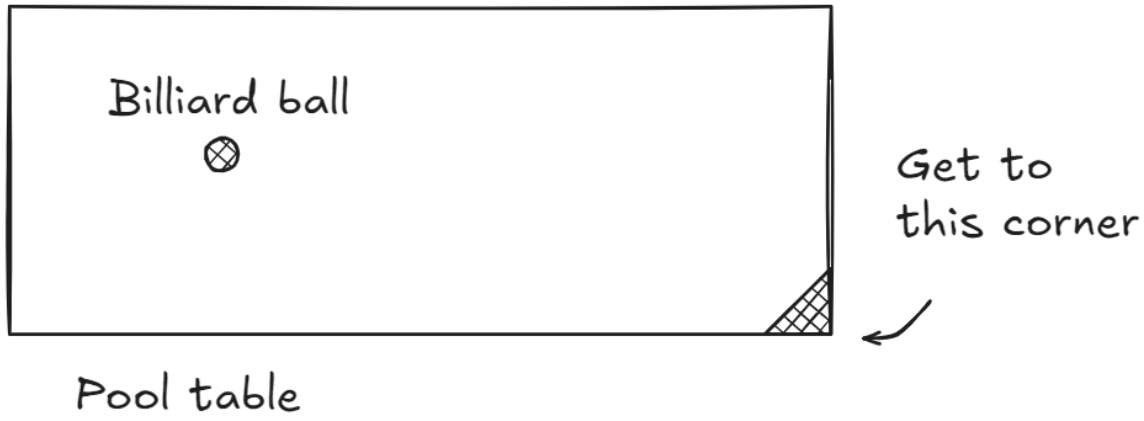
When a light ray (billiard ball, etc.) hits a mirror or wall, don't reflect the ray, reflect the scene across the mirror or wall instead.

Application

To hit a billiard ball

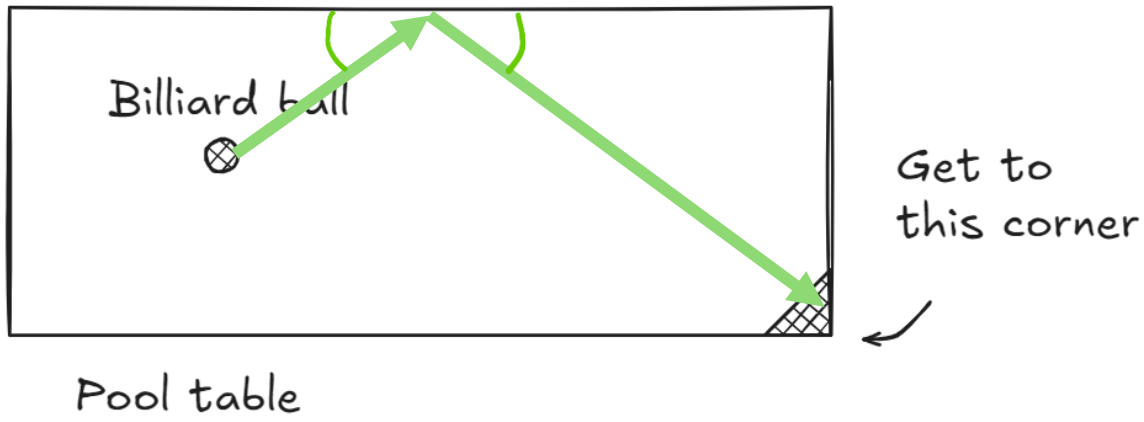


To hit a billiard ball



You could eye the angle...

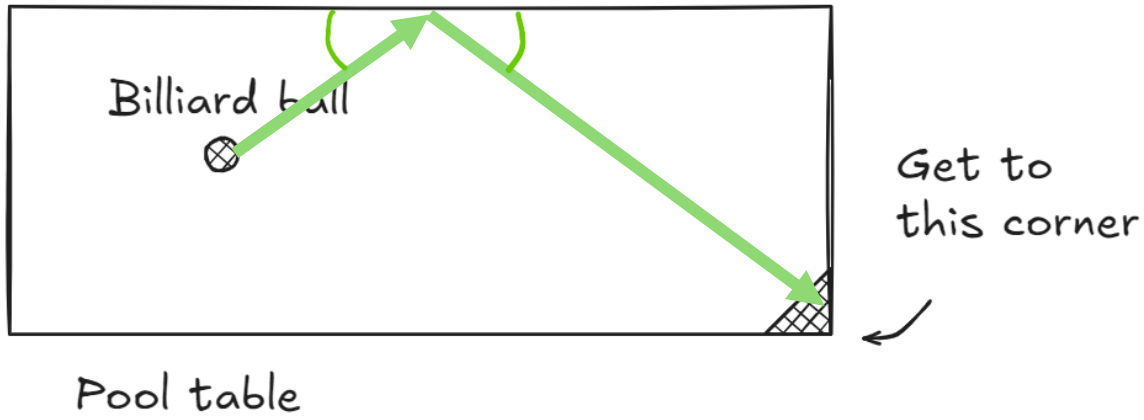
To hit a billiard ball



You could eye the angle...

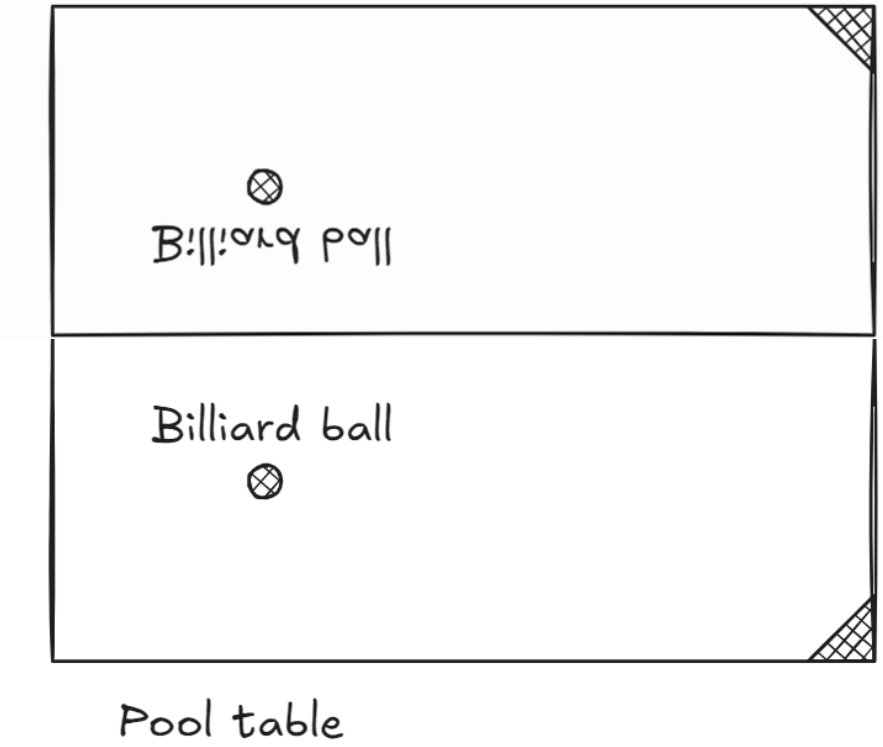
Reflect the line
Scene stays the same

To hit a billiard ball



You could eye the angle…

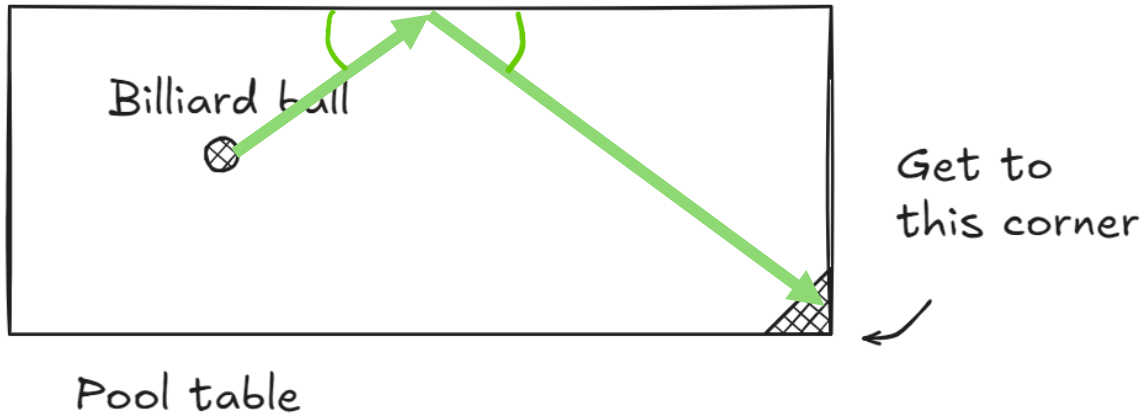
Reflect the line
Scene stays the same



Or you could reflect the scene

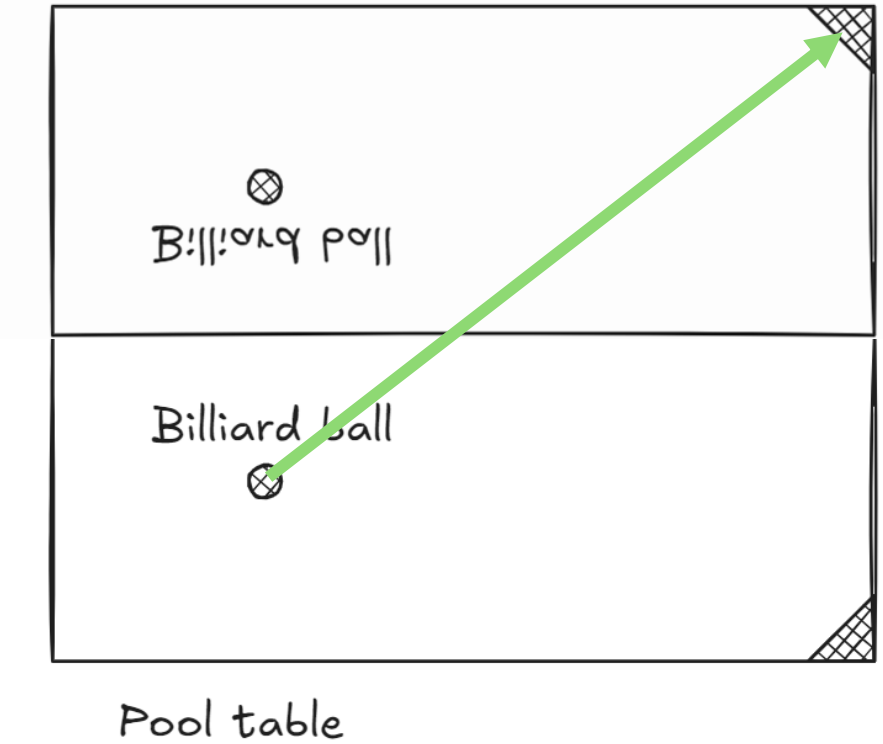
Reflect the scene
Continue the line

To hit a billiard ball



You could eye the angle…

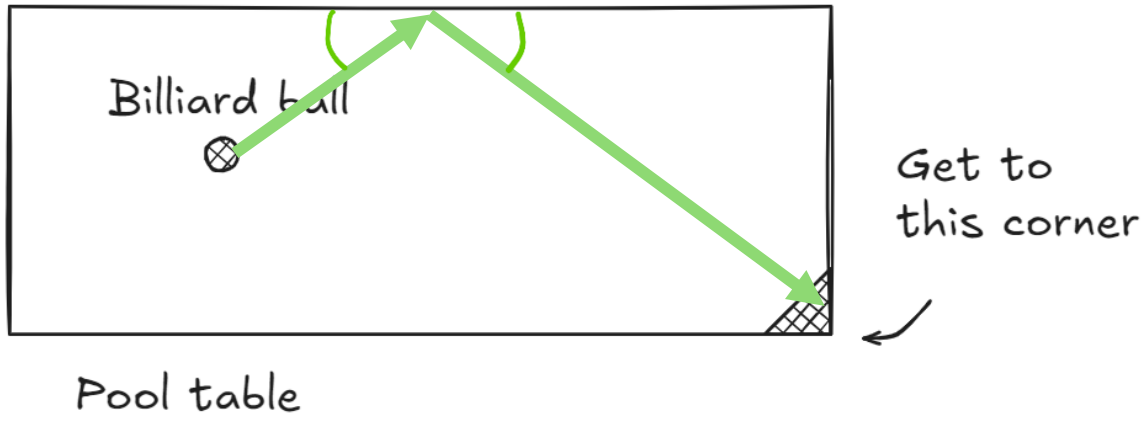
Reflect the line
Scene stays the same



Or you could reflect the scene

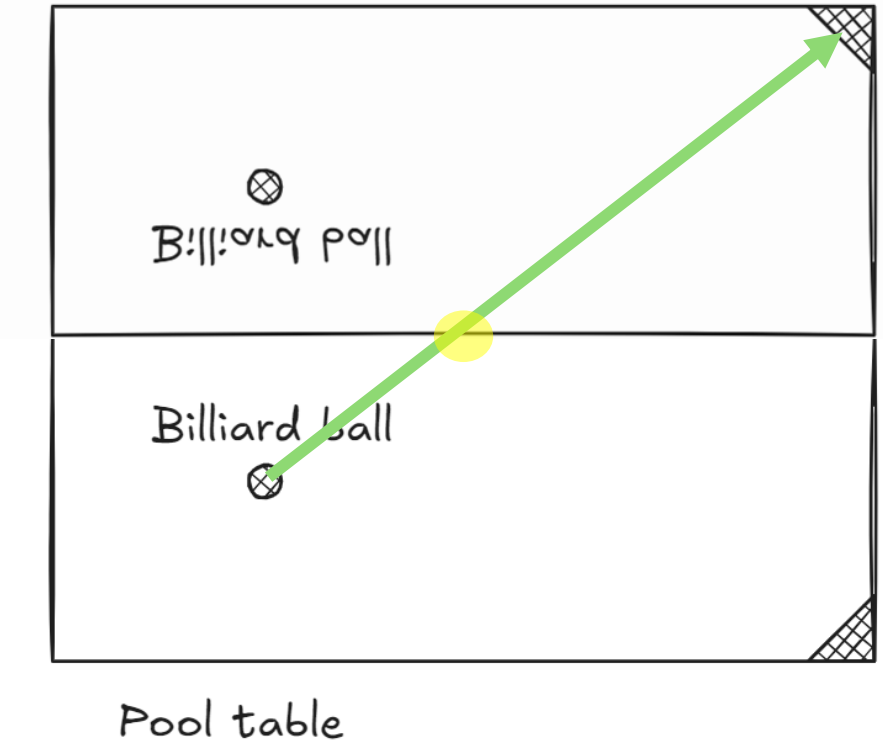
Reflect the scene
Continue the line

To hit a billiard ball



You could eye the angle…

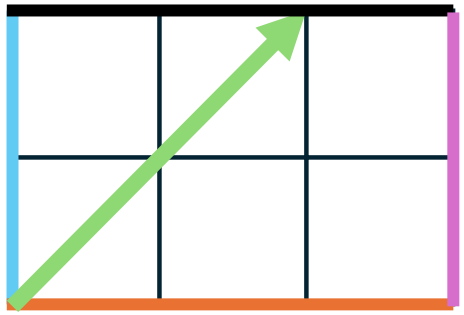
Reflect the line
Scene stays the same



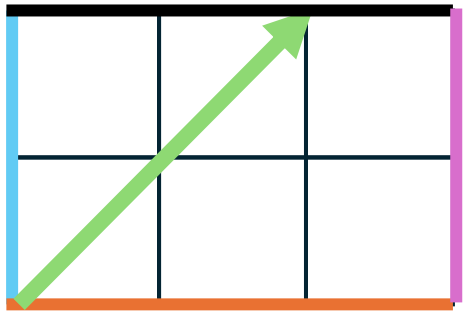
Or you could reflect the scene

Reflect the scene
Continue the line

So for Problem 2:

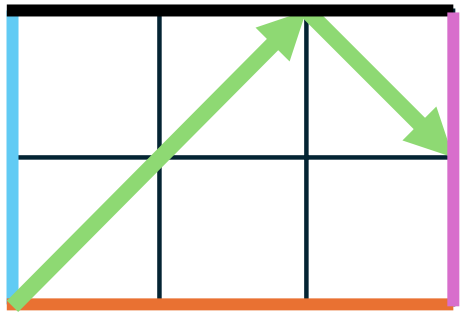


Reflect the line

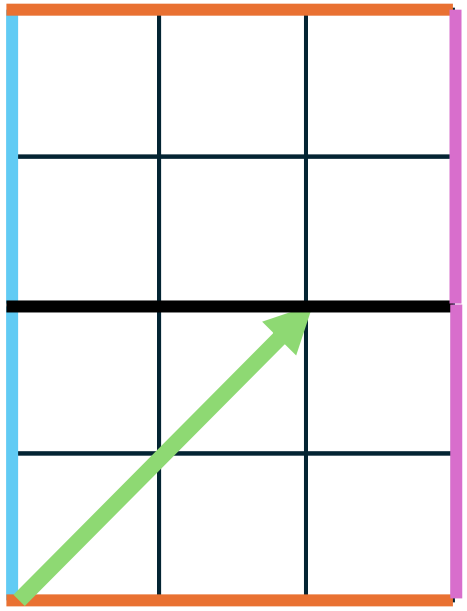


Reflect the scene

So for Problem 2:

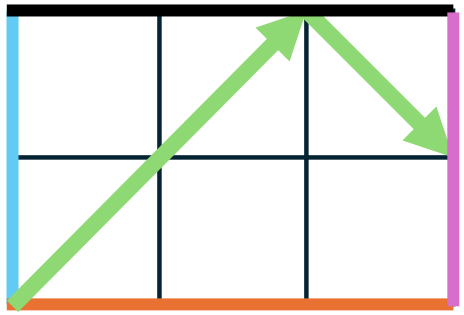


Reflect the line



Reflect the scene

So for Problem 2:



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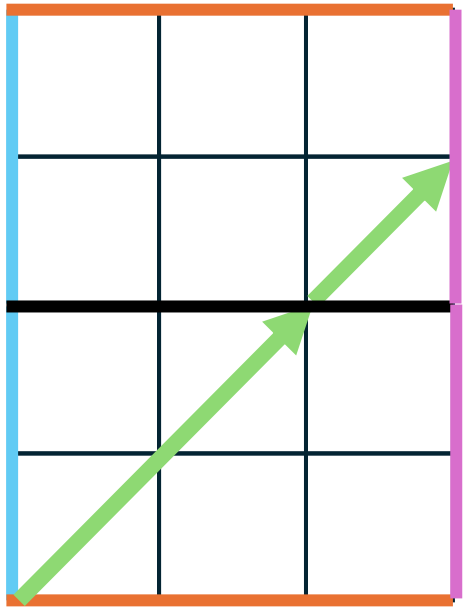

Reflect the scene

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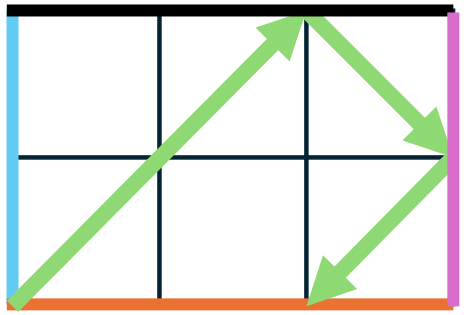

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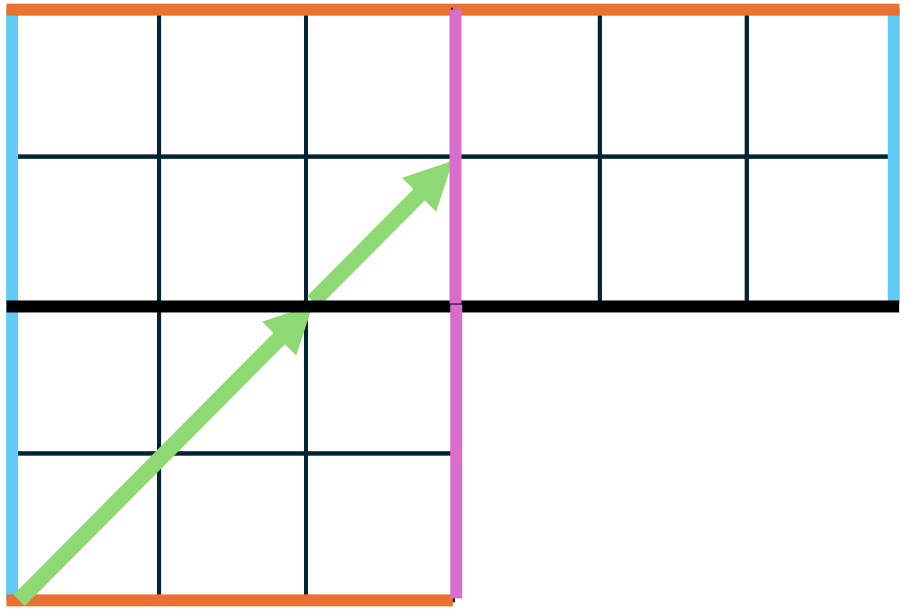
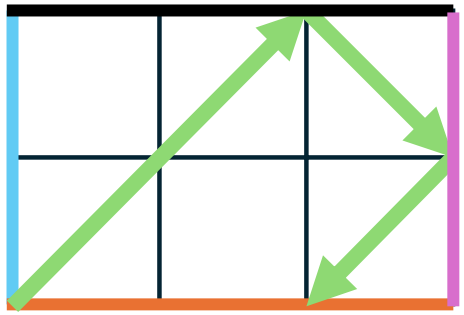
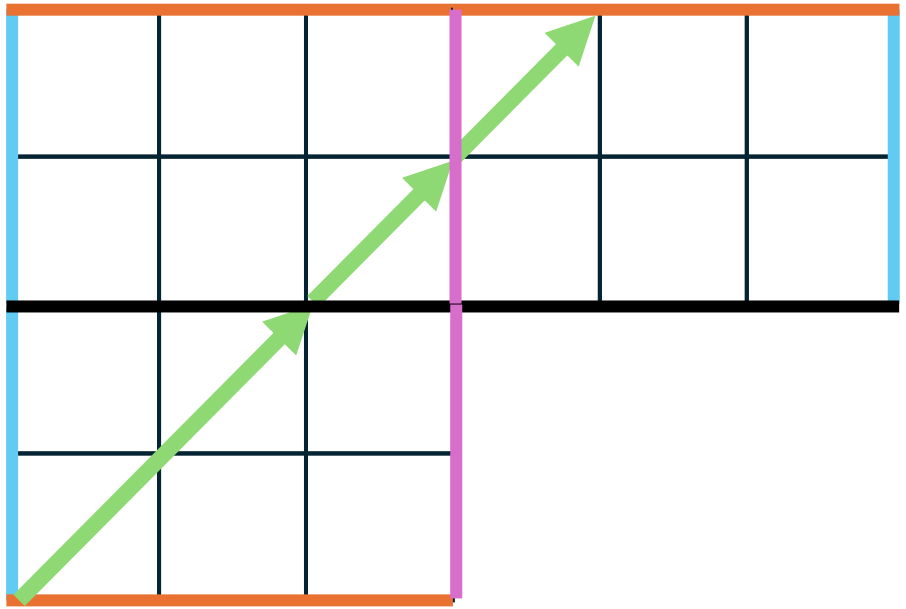


Reflect the scene

So for Problem 2:



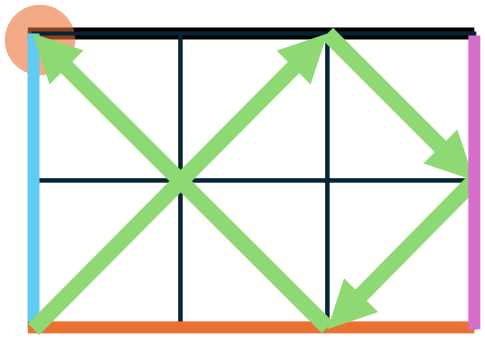
Reflect the line



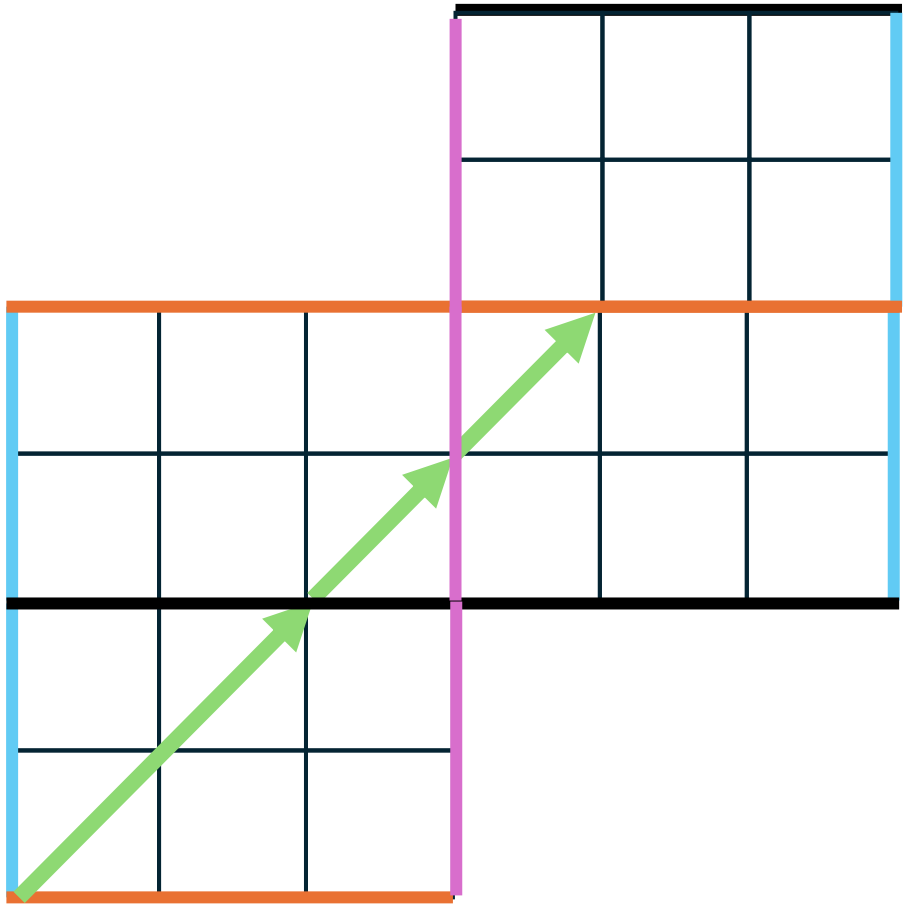
Reflect the scene

So for Problem 2:

Hits corner after 3 bounces



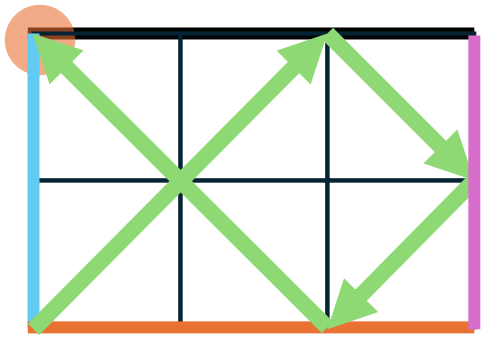
Reflect the line



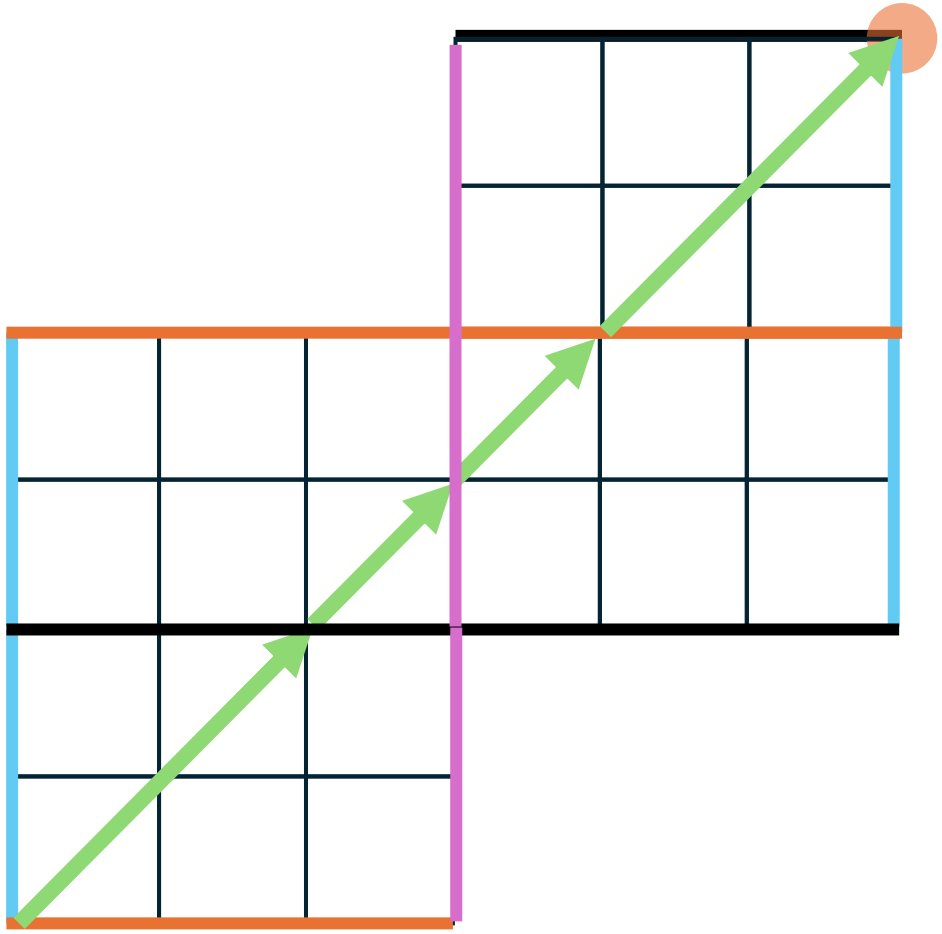
Reflect the scene

So for Problem 2:

Hits corner after 3 bounces



Reflect the line



Reflect the scene