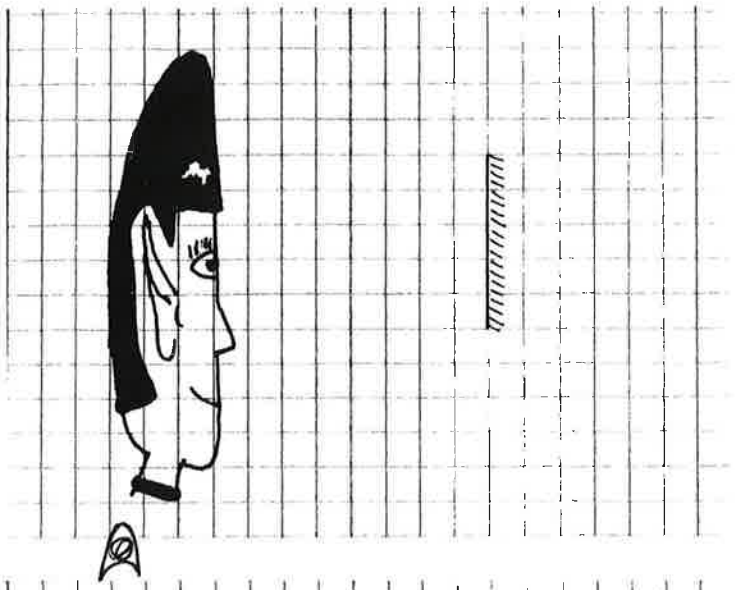
How long/tall does a mirror have to be for you to be able to see your whole face[λ]/head?

Use the **'Law of Reflection'** to answer the following:

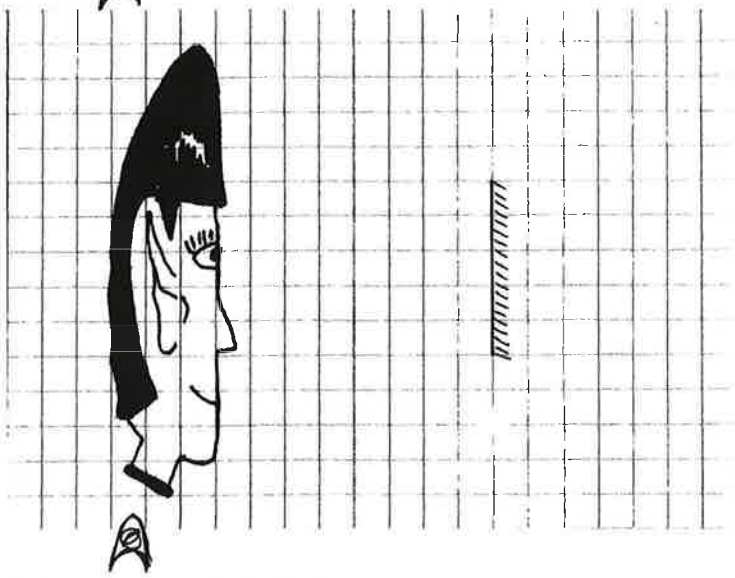
Science Officer Spock was looking at his face in a mirror that was 5 units tall. Draw the appropriate *light rays* (chin-to-eye & top of head-to-eye), to determine if Mr. Spock will be able to see his whole face/head in the mirror.

What did you find out?



Draw light rays to see what happens when Mr. Spock lowers the mirror down one square.

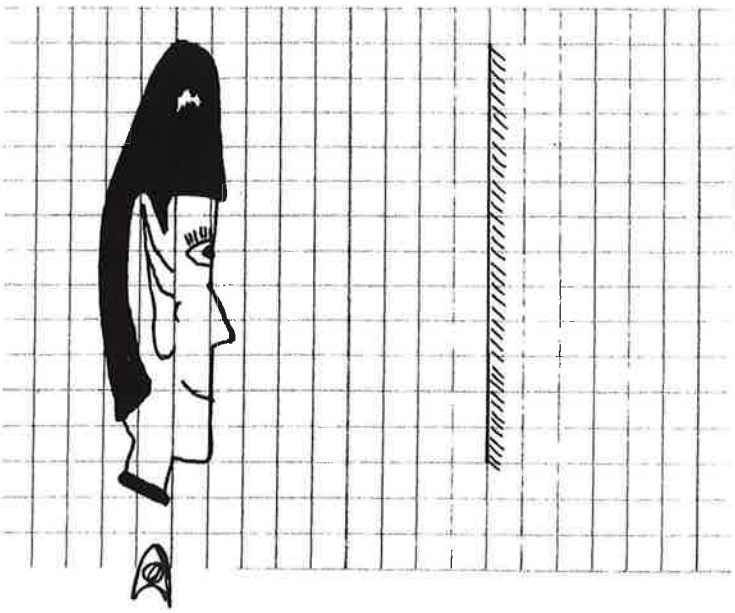
What did you find out?



Mr. Spock got a mirror that was exactly the same height as his face/head. Draw light rays to see if this mirror will allow him to see his whole face.

What portion (how many squares?) of the mirror did Mr. Spock use to see his whole face?

Can you figure out the relationship between the length of mirror required to see whole face and length/height of face? What is it?



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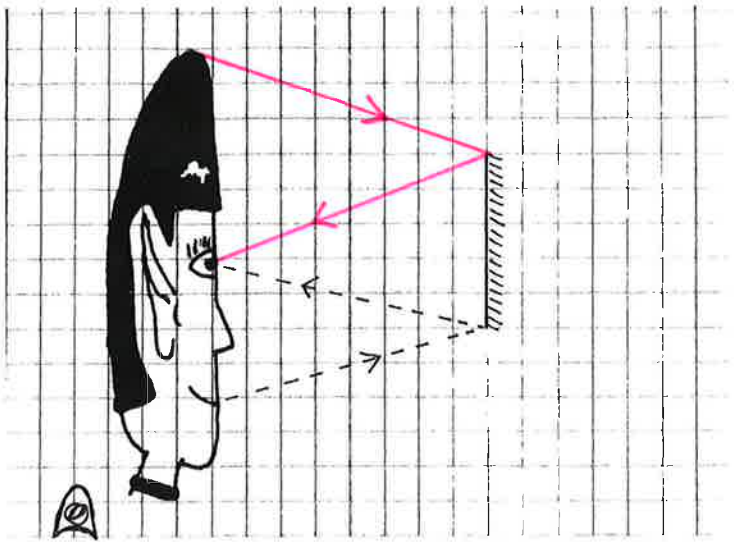
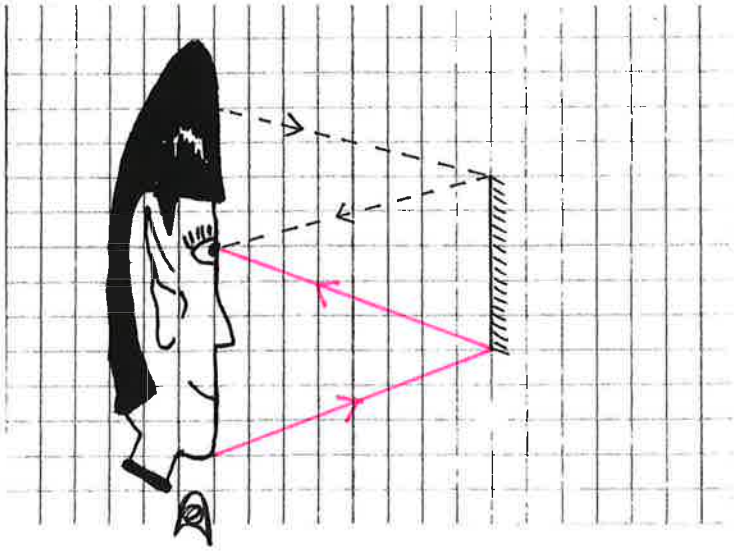


What did you find out?

He can see the top of his head, but cannot see his chin! Just his mouth...

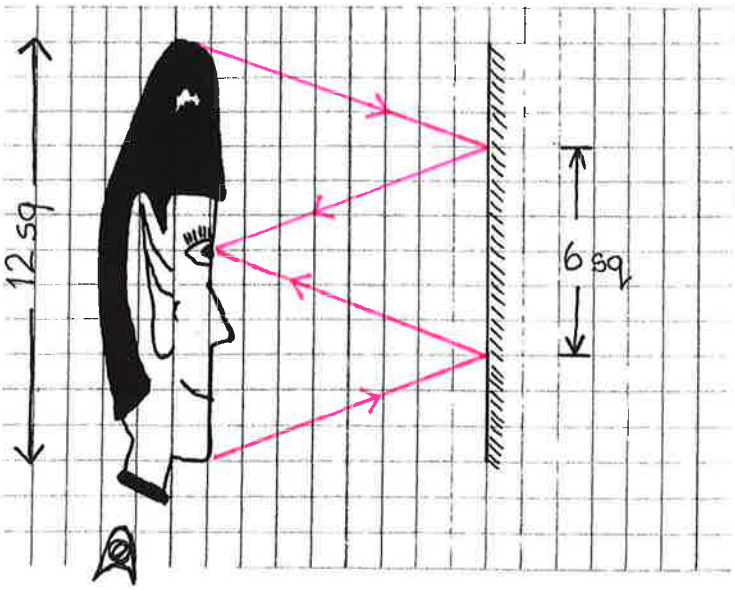
Draw light rays to see what happens when Mr. Spock lowers the mirror down one square.



What did you find out?

He can see his chin this time, but NOT the top of his head!

Mr. Spock got a mirror that was exactly the same height as his face/head. Draw light rays to see if this mirror will allow him to see his whole face.

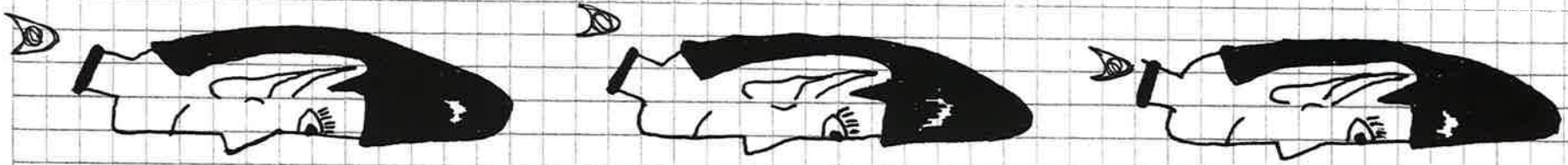


What portion (how many squares?) of the mirror did Mr. Spock use to see his whole face?

6 squares

Can you figure out the relationship between the length of mirror required to see whole face and length/height of face? What is it?

The mirror need to be at least ½ the height of his head !!



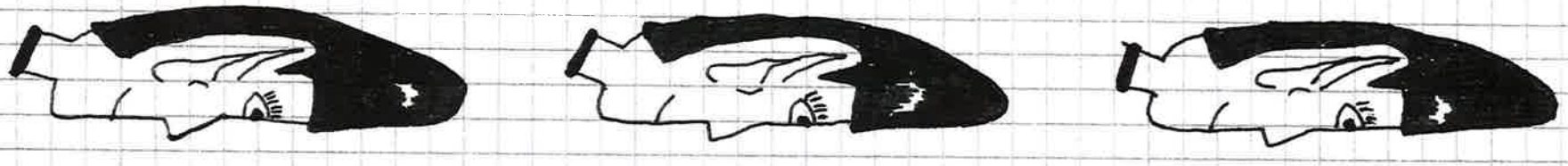
Mirror

Mirror

Mirror

Form 1701d

Form 1701 d-2



Mirror

Form 1701e

Mirror

Mirror