



**OriNidaZoom**



**CENTRO  
DIFFUSIONE  
ORIGAMI**

# Diamoci un taglio!



*La matematica con  
un colpo di forbici*

4 Maggio 2022

Francesco Mancini

# Dall'idea...

- Si prende un foglio di carta;
- Si piega in modo che sia piatto;
- Si fa un singolo taglio dritto passante;
- Si riaprono i pezzi.

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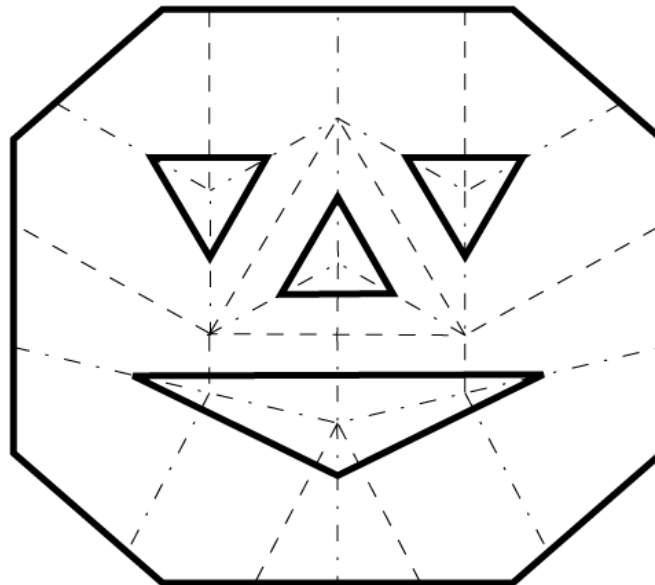
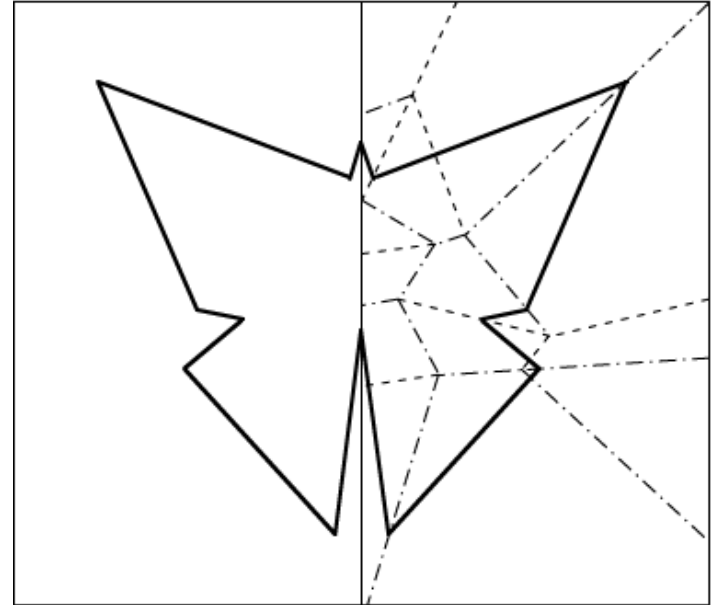
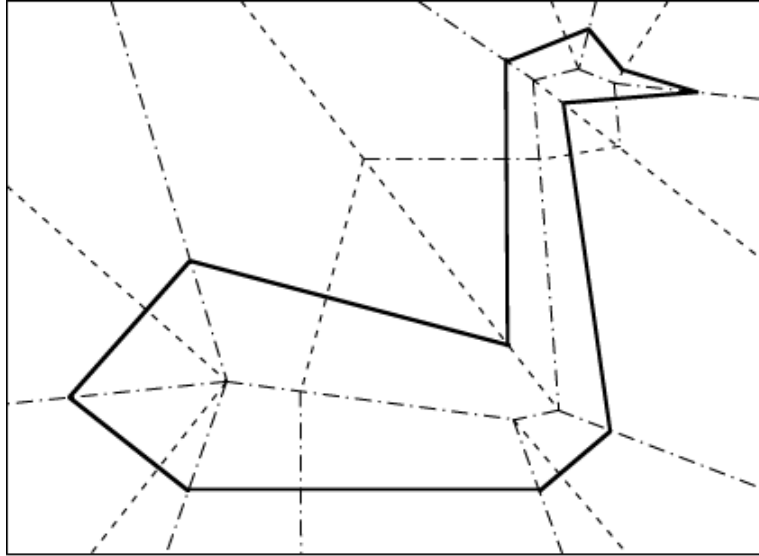
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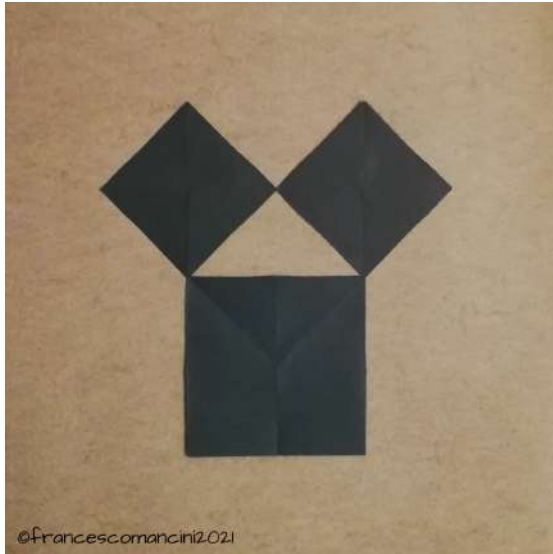
...al teorema

*Qualunque collezione di segmenti di retta può essere ottenuta mediante un unico taglio dopo aver opportunamente piegato un origami piatto.*

# Erik Demaine



# Francesco Mancini

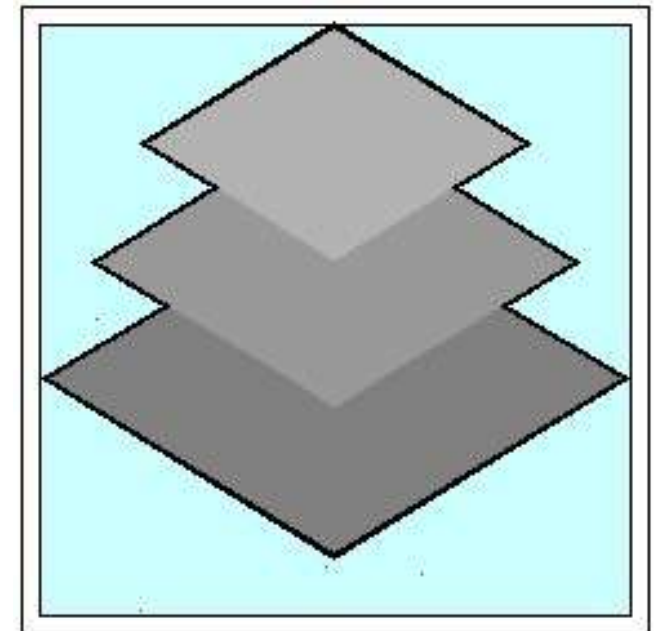


# Piega e taglia

Tagaya Kanchu Sen

*Wakoku Chie Kurabe* (1727)

Ikko Tachi Mondai (problema del singolo taglio)



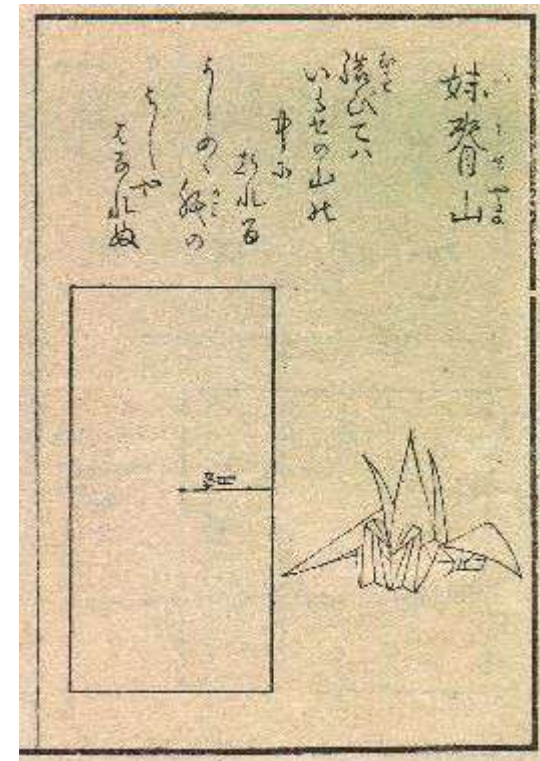
Sangai bishi

# Taglia e piega



Roko-an Gido

Hiden Senbazuru Orikata (1797)

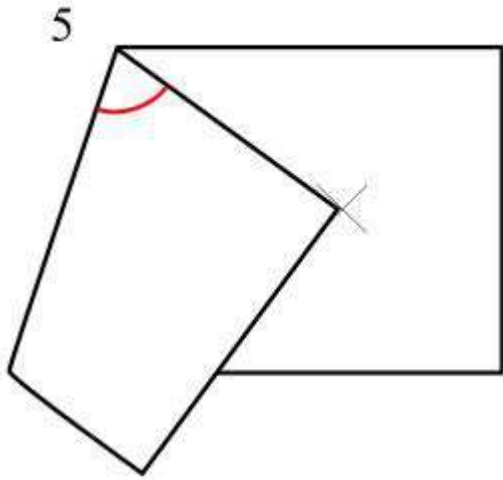


Imose-yama

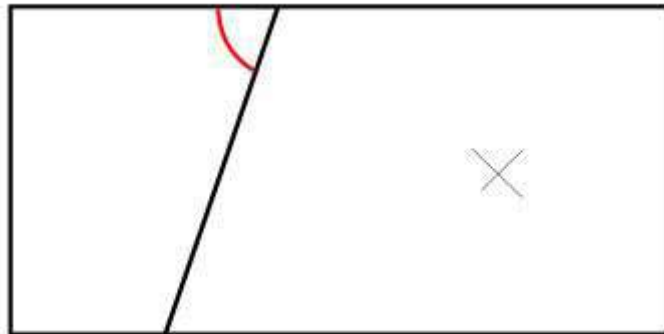
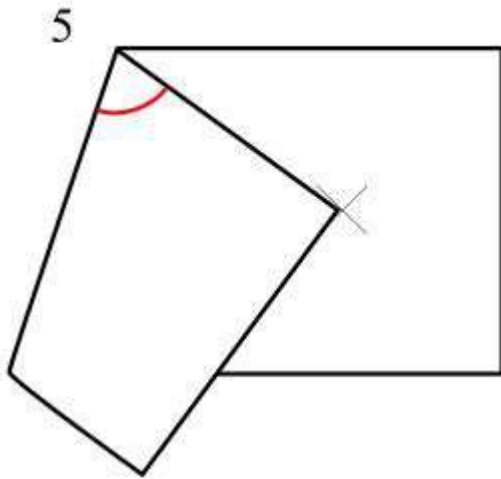


**Che pentagono è?**

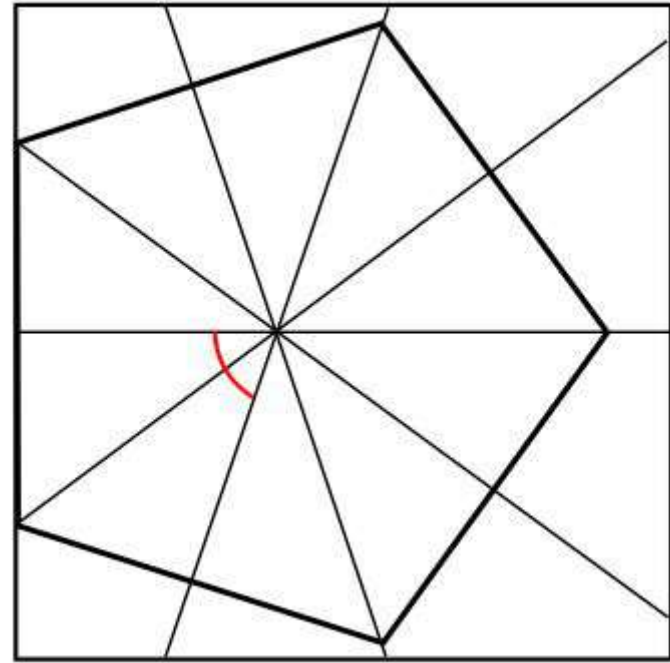
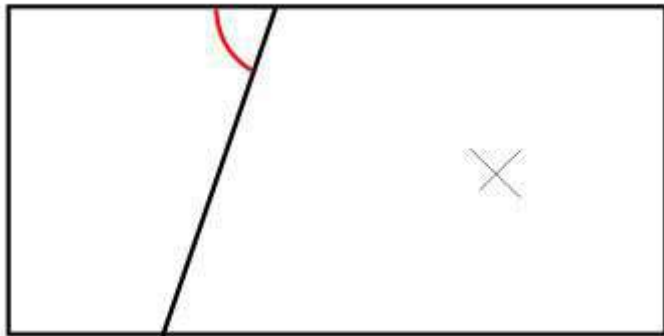
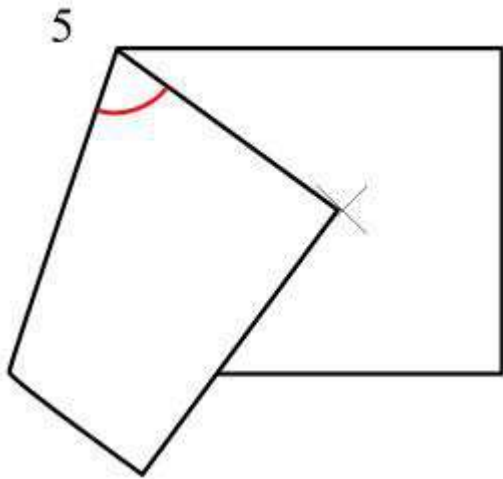
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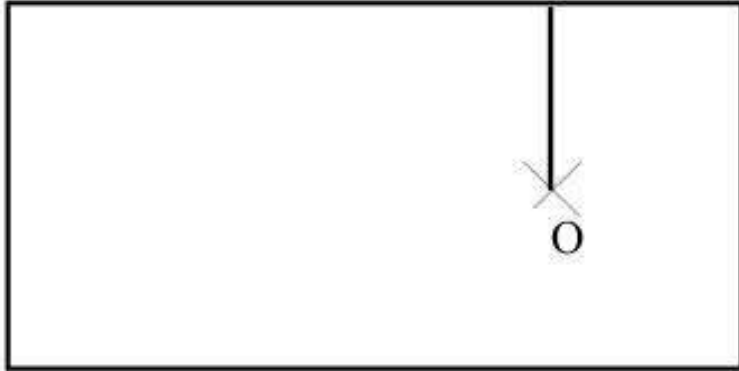
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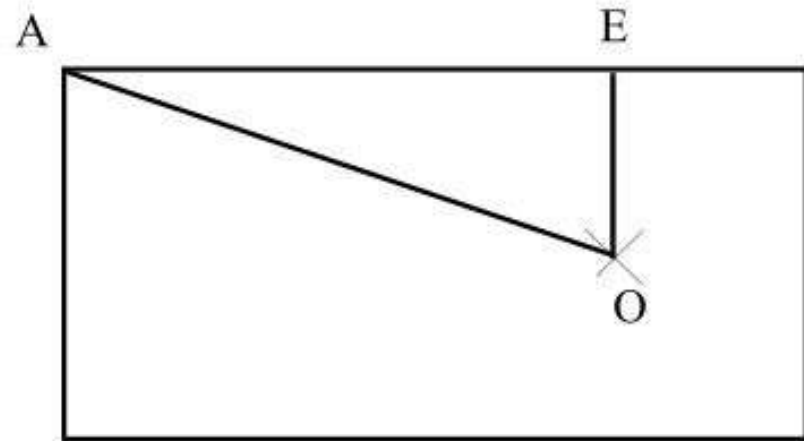
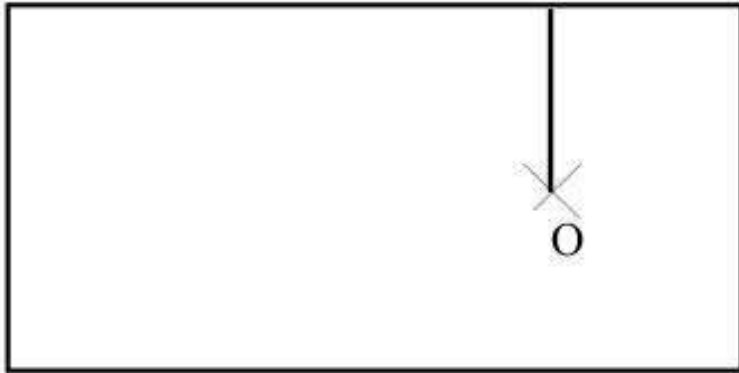
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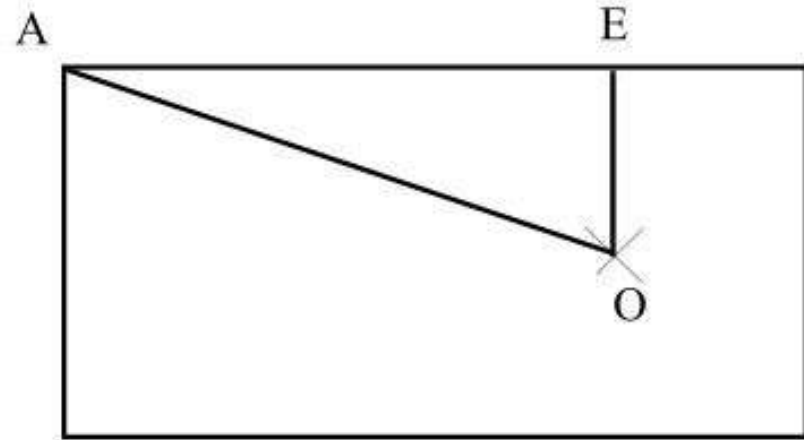
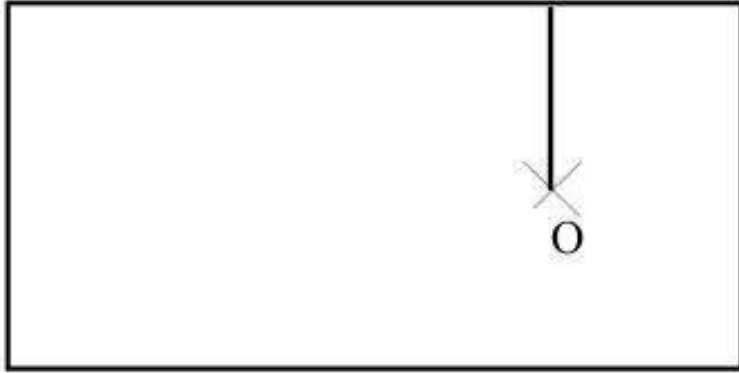
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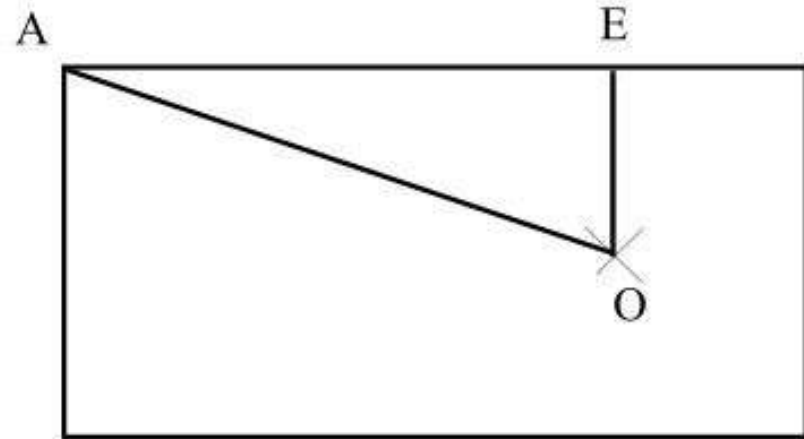
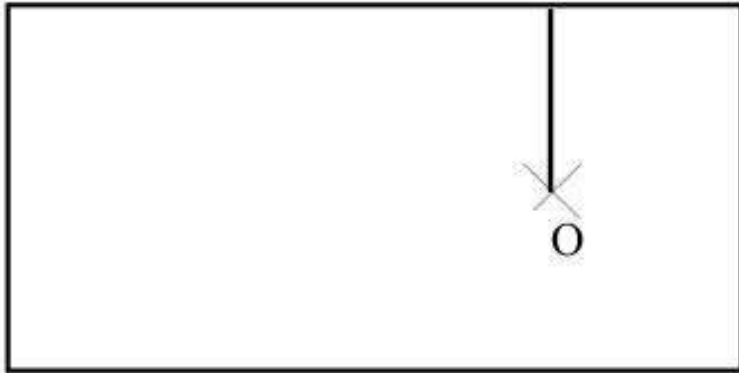


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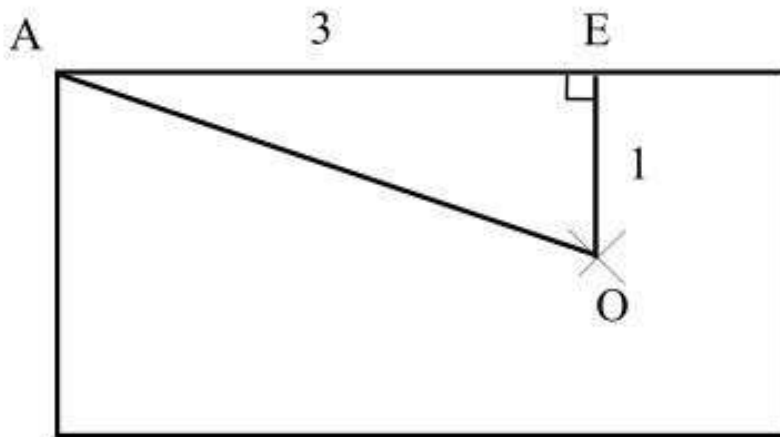


Cosa possiamo dire del  
triangolo AEO?

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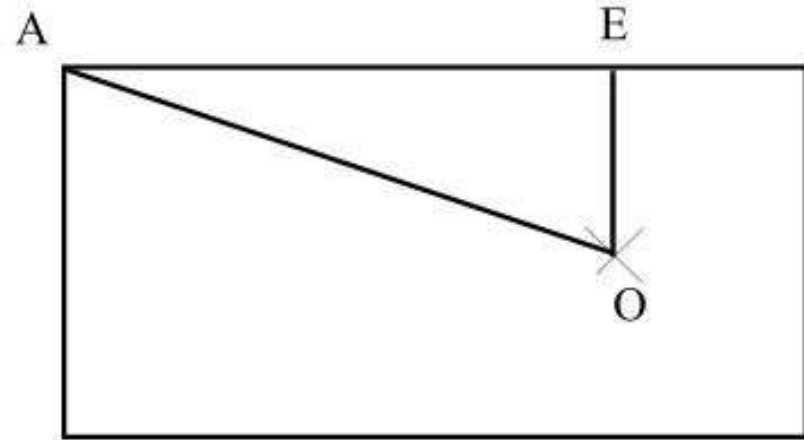
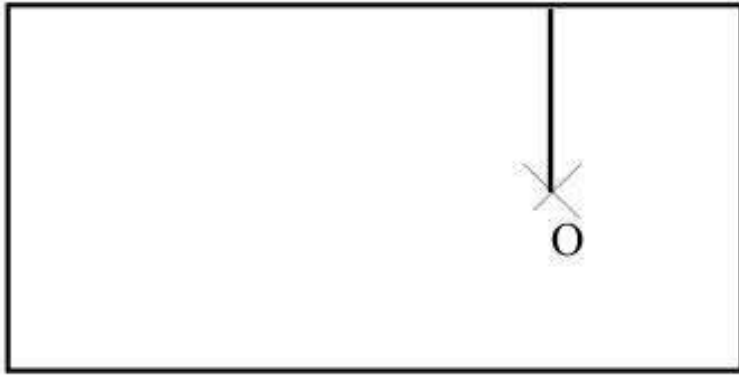


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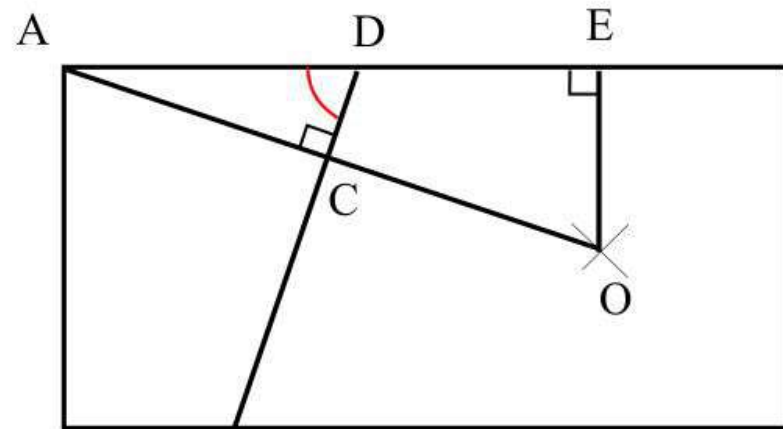
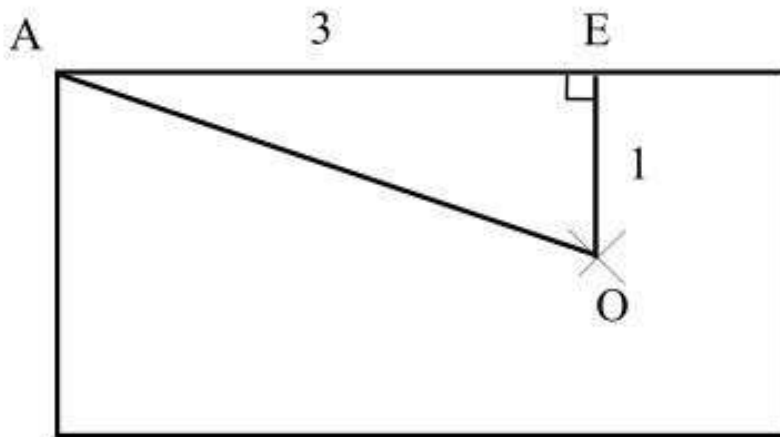




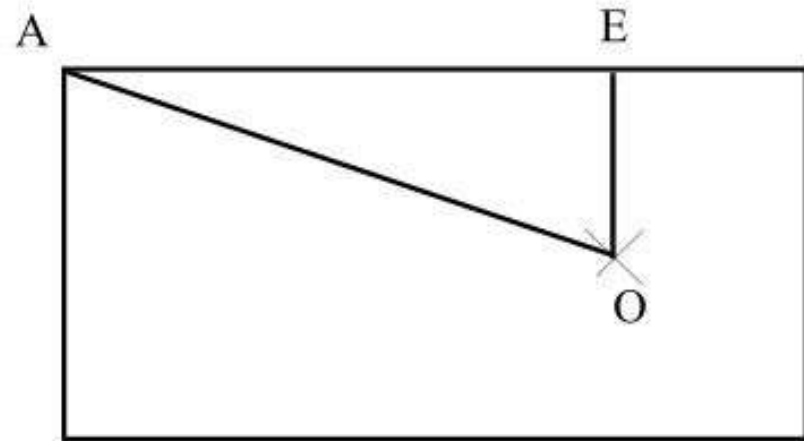
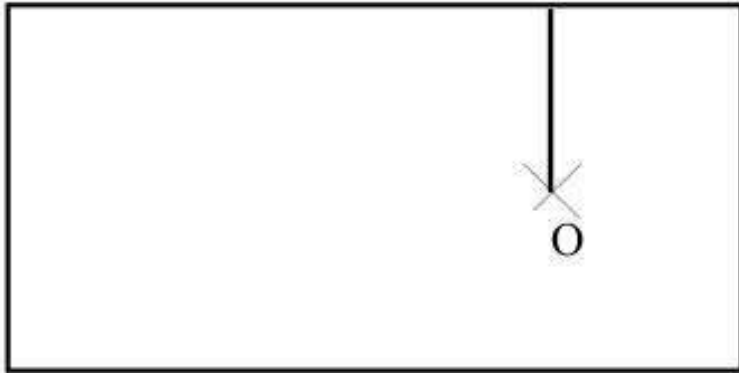
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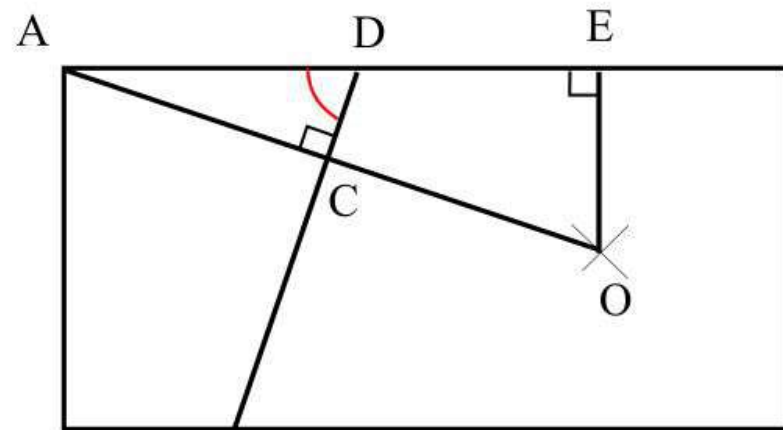
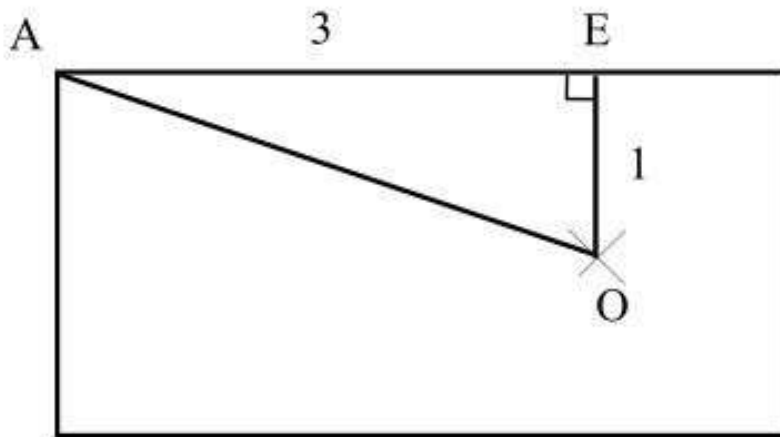
Cosa possiamo dire del triangolo  $AEO$ ?



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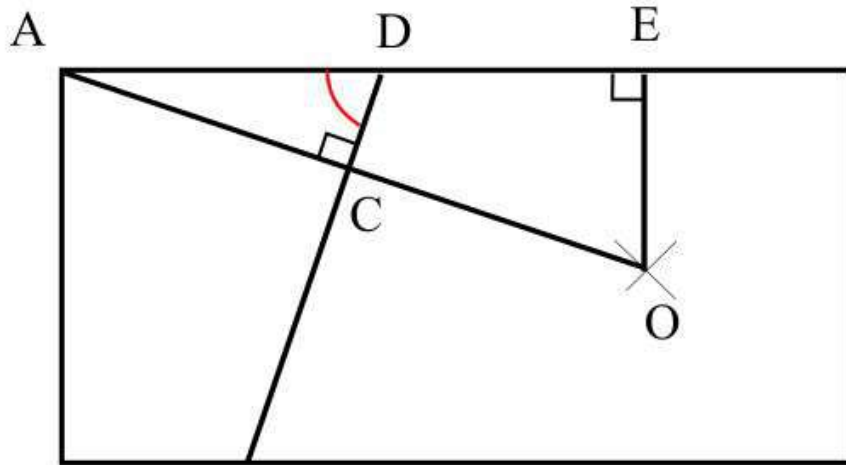


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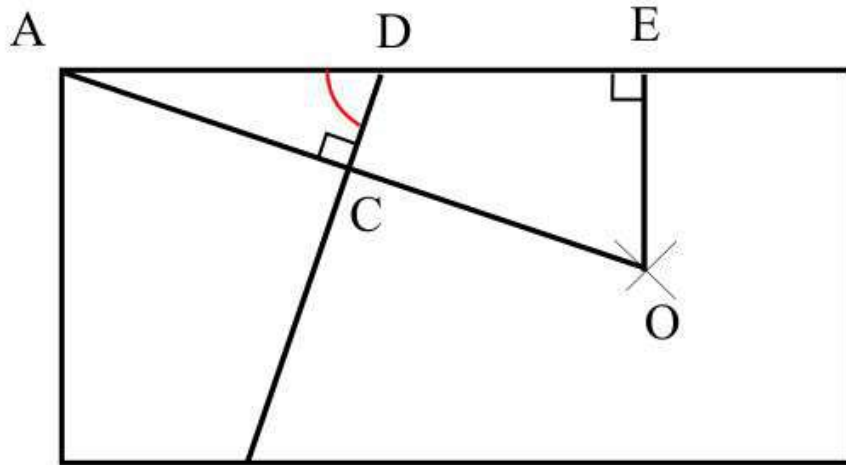


Cosa possiamo dire del  
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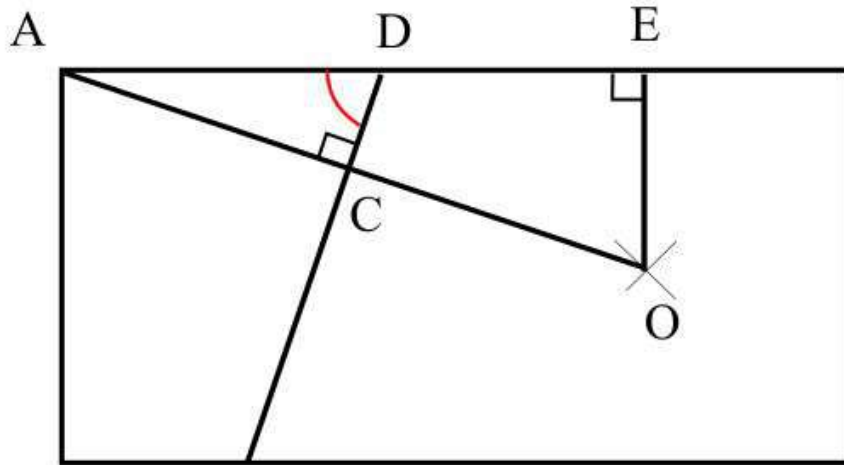


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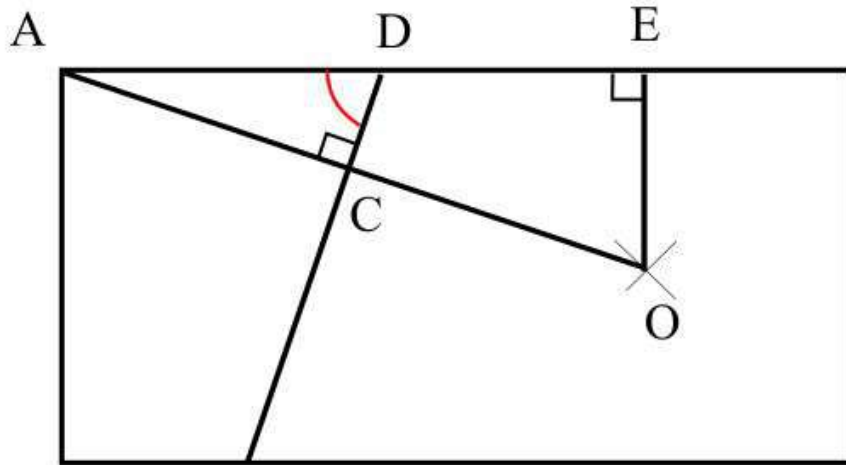
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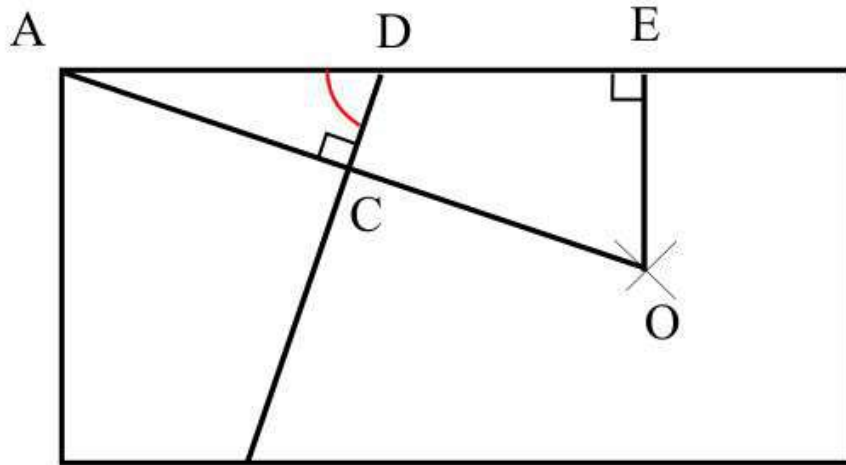


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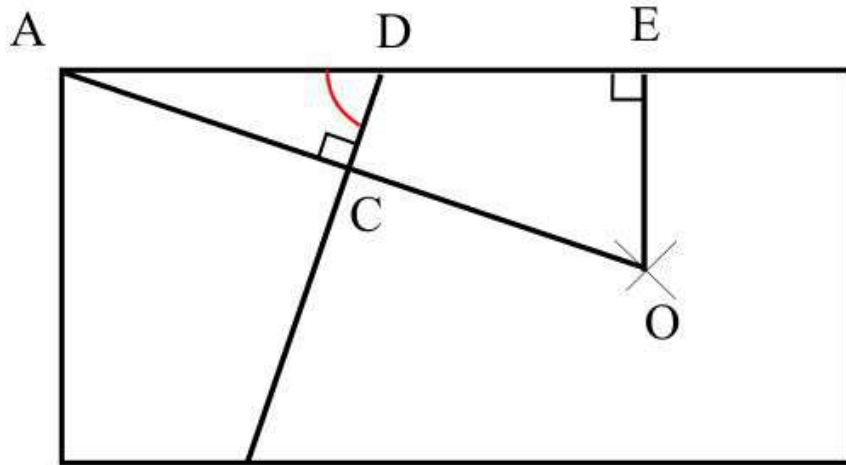
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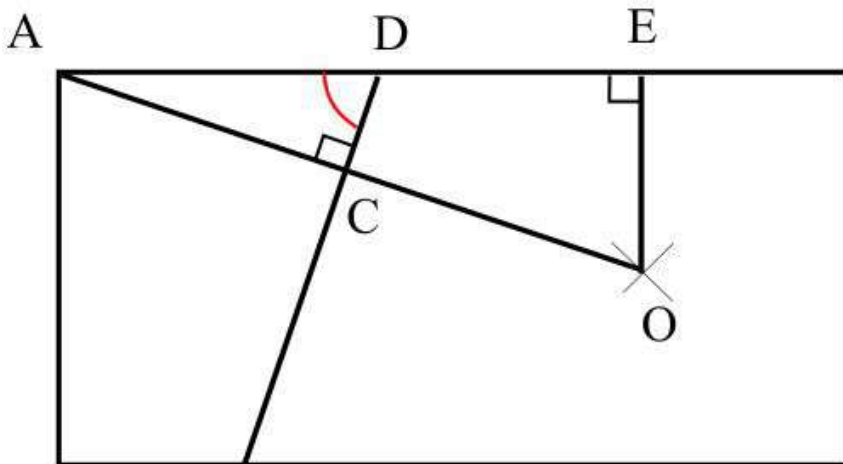


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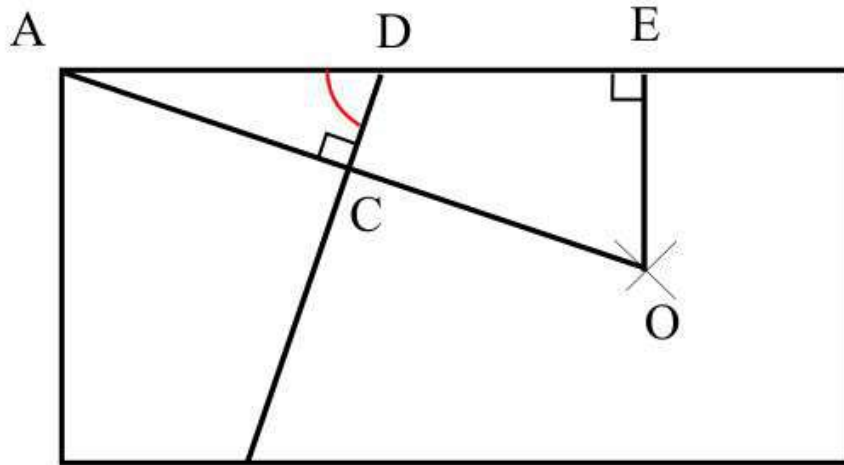
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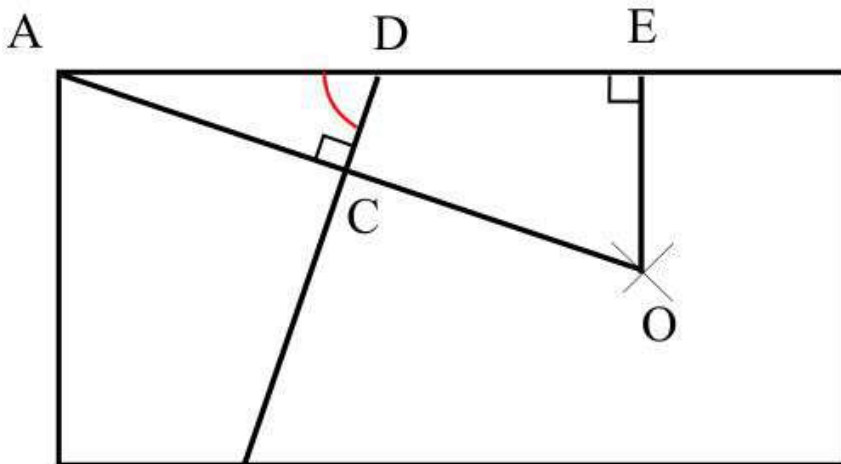


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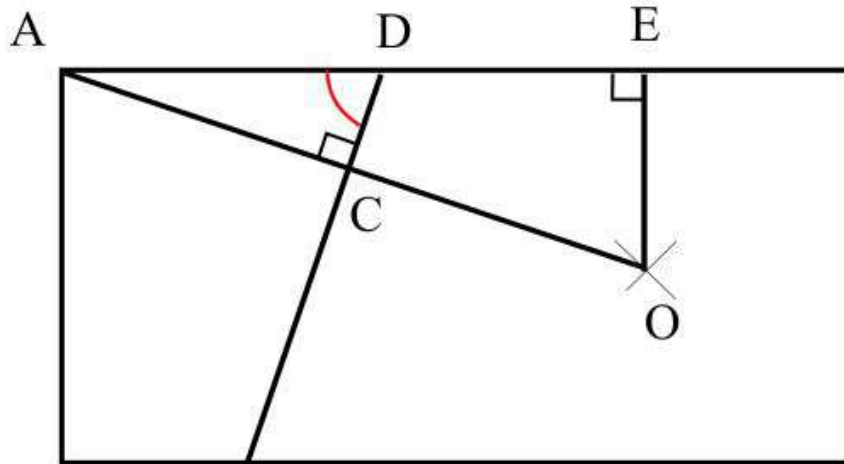
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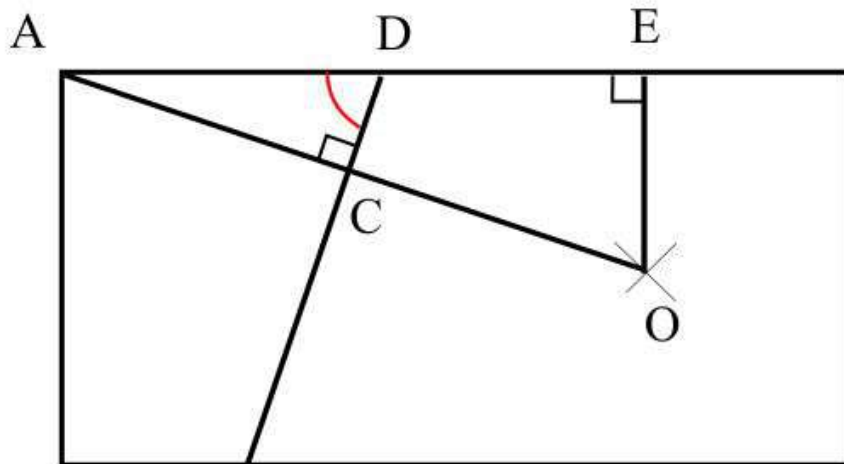


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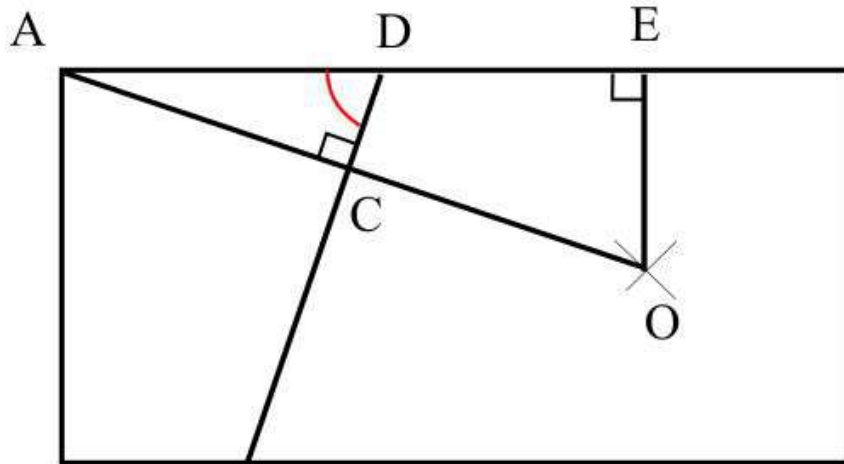
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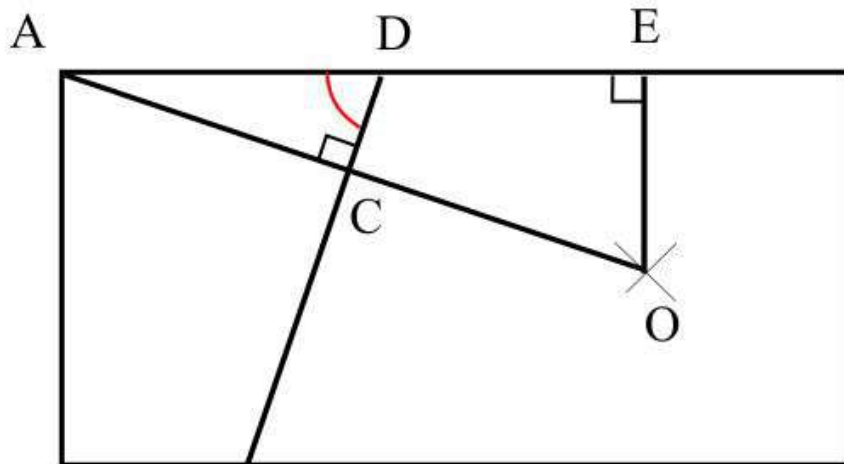


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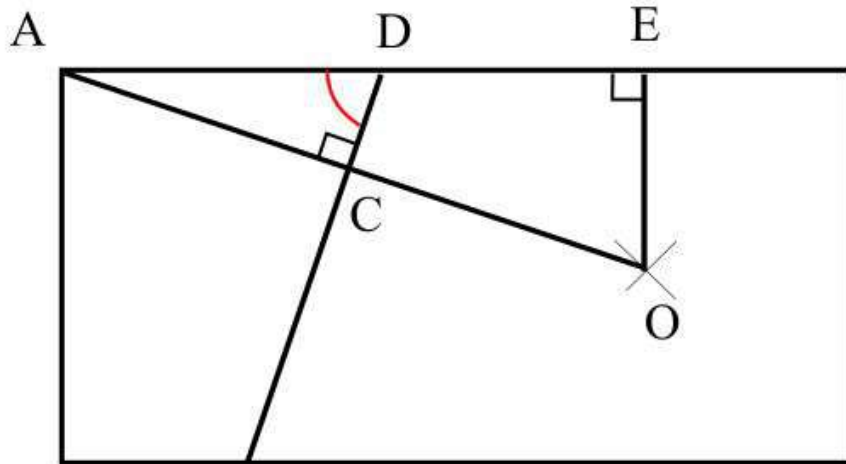


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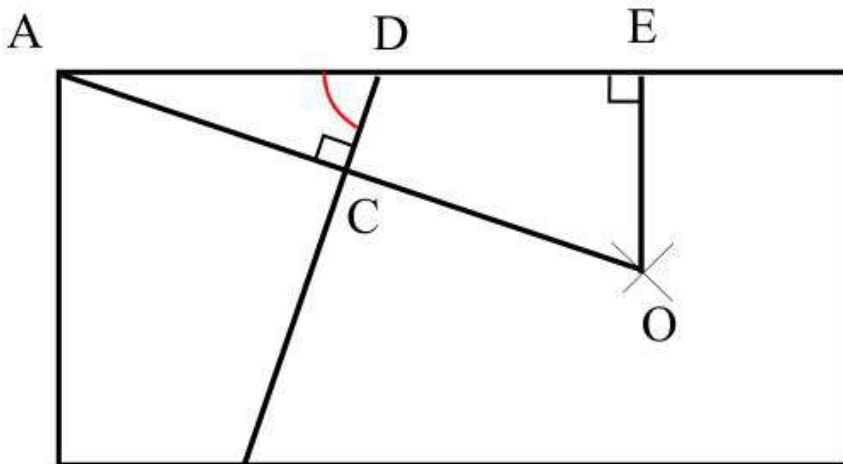


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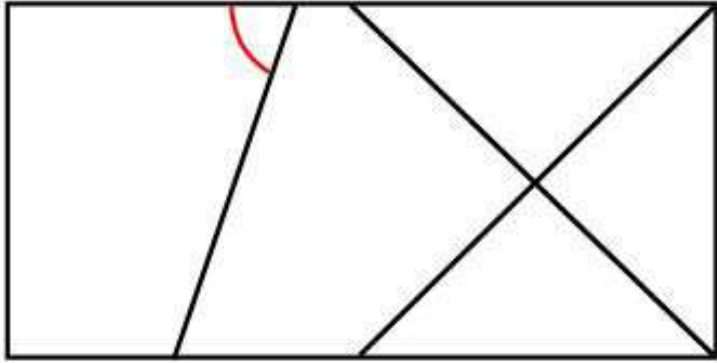
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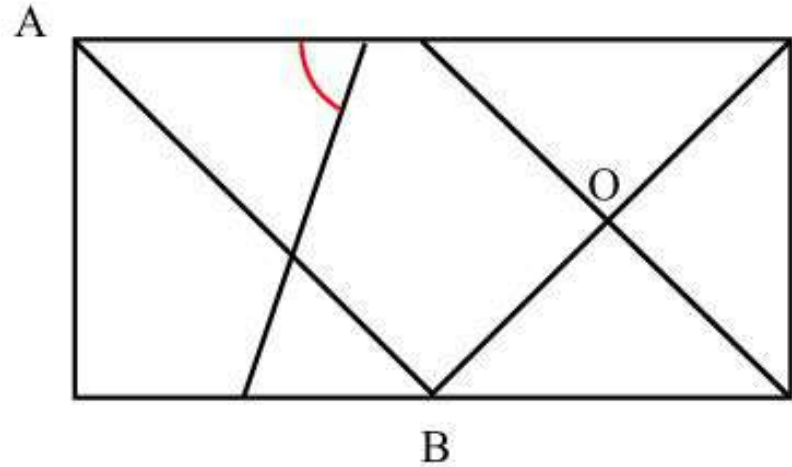
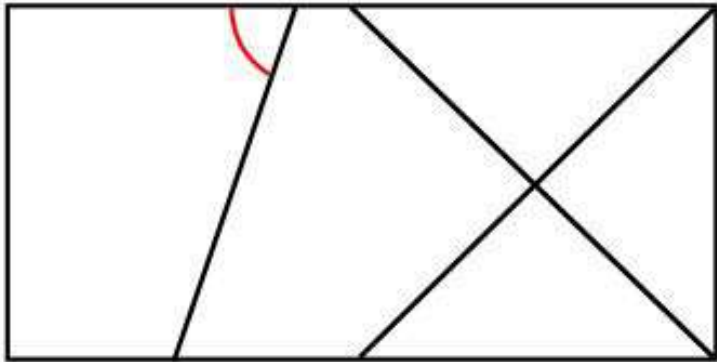
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**È un pentagono irregolare**

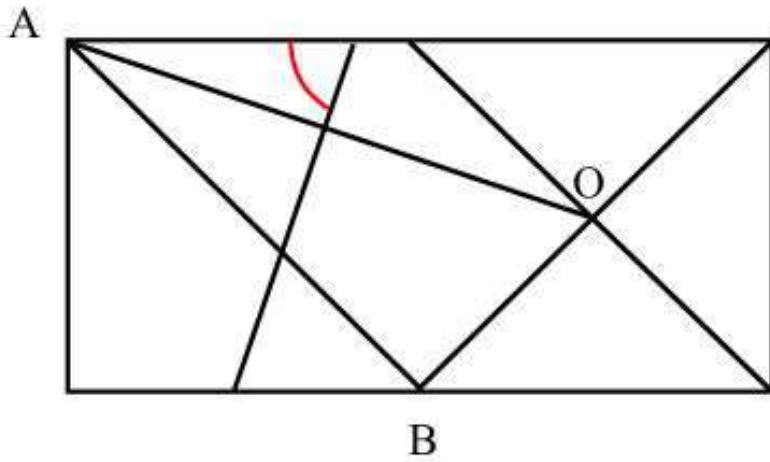
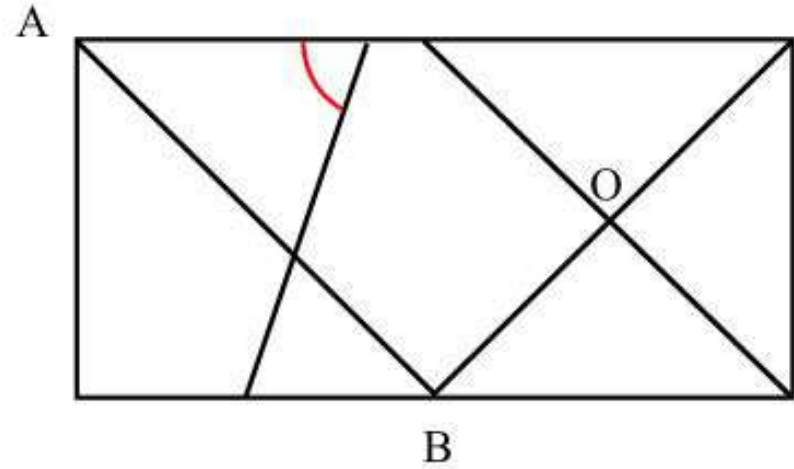
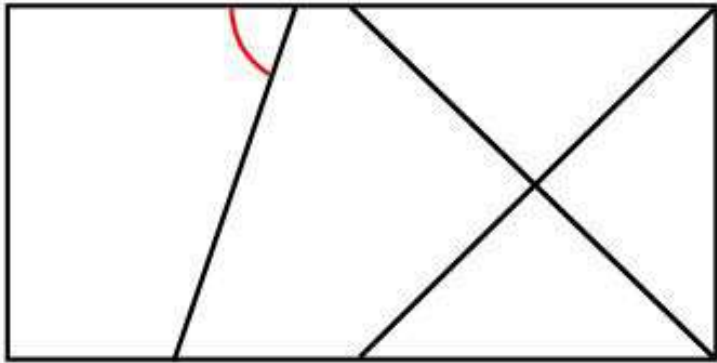
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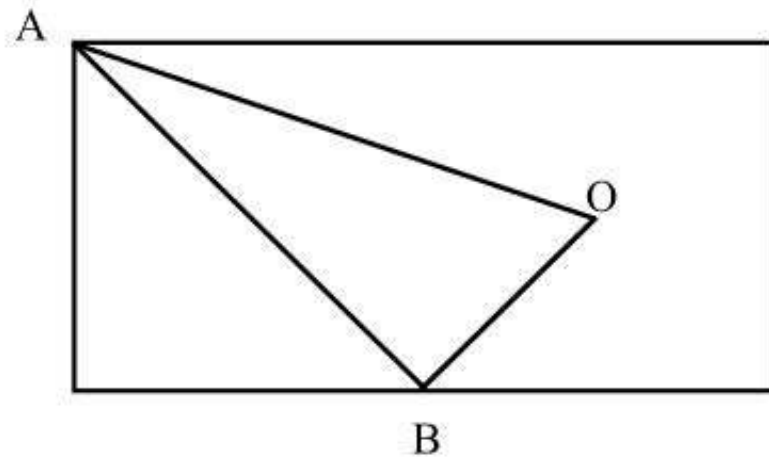
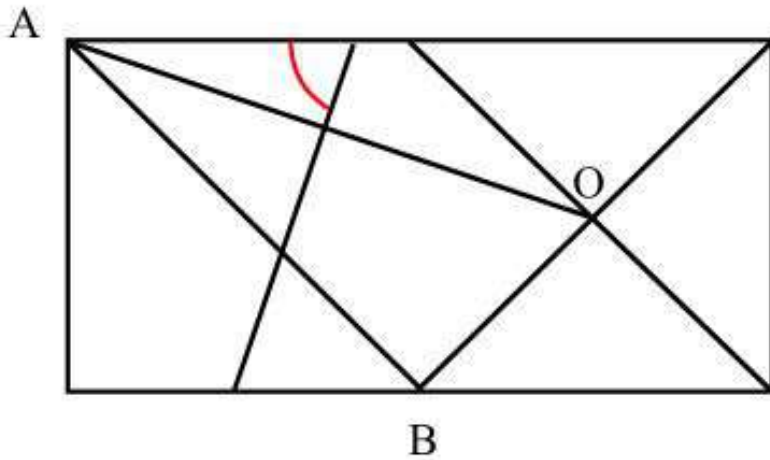
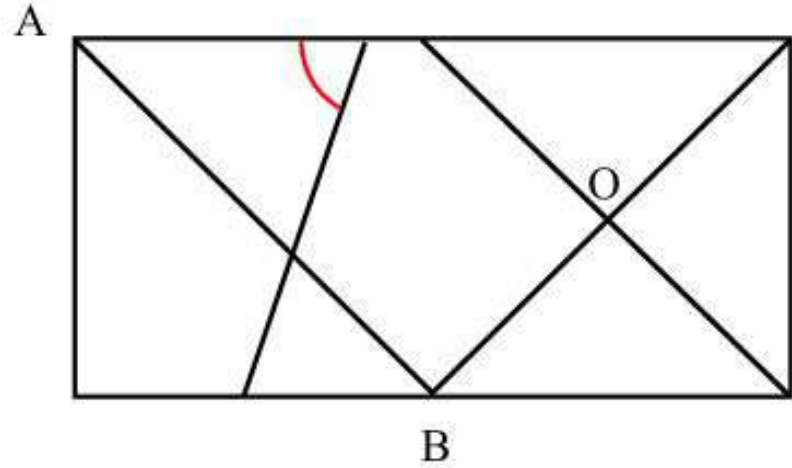
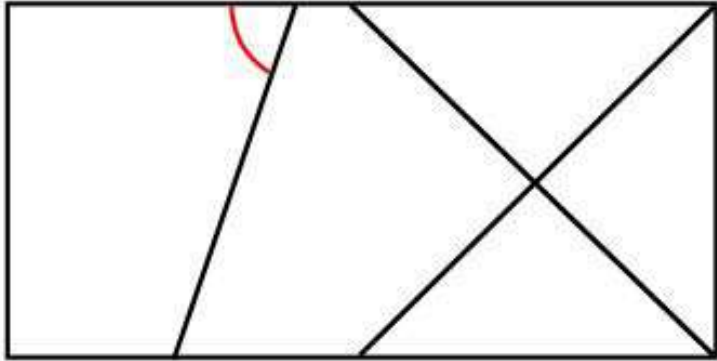
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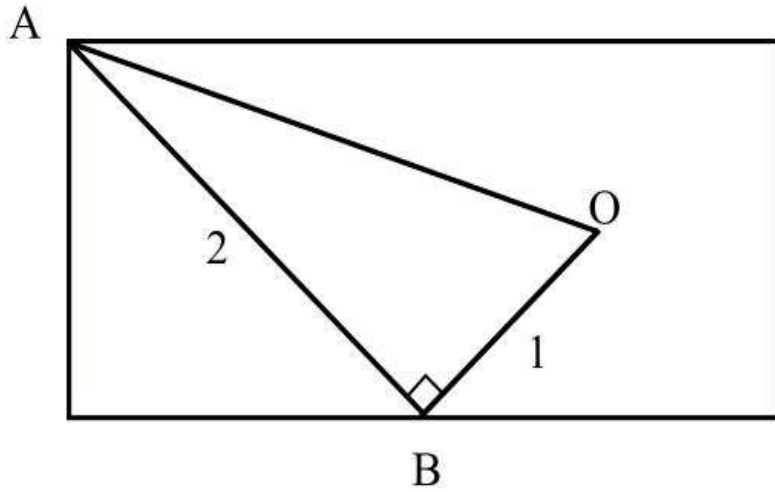
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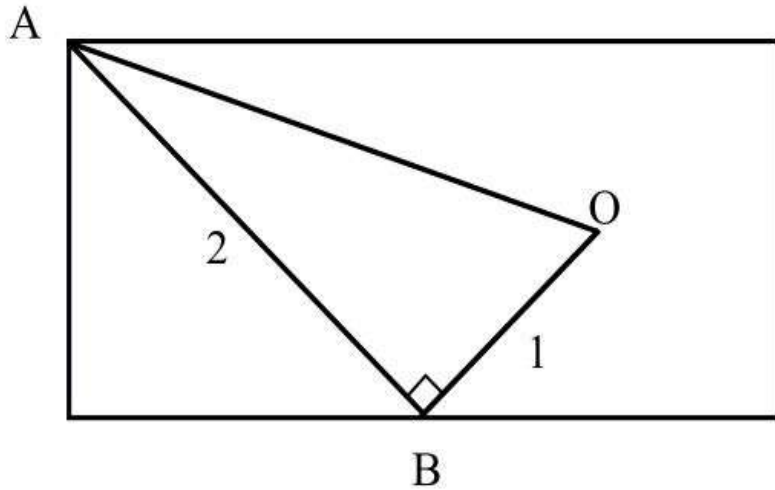
Cosa possiamo dire del  
triangolo ABO?



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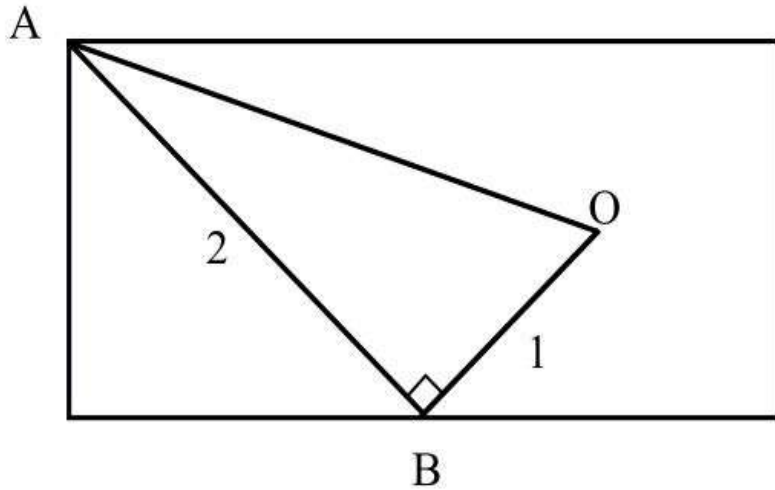


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$$\tan \hat{B}AO = BO/AB$$

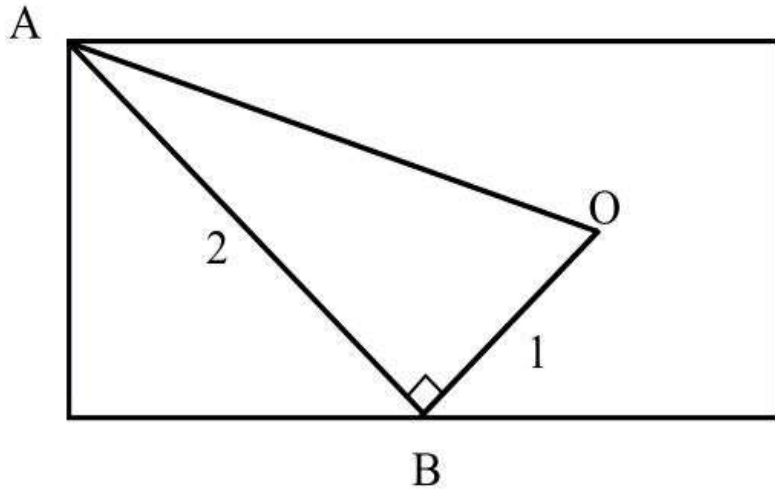
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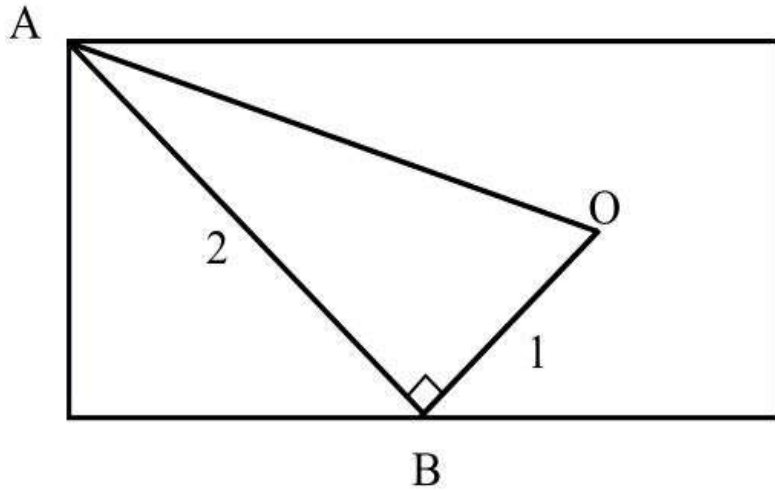


$$\tan \hat{B}AO = BO/AB$$

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$$\hat{B}AO = \arctan \frac{1}{2} = \sim 27^\circ$$

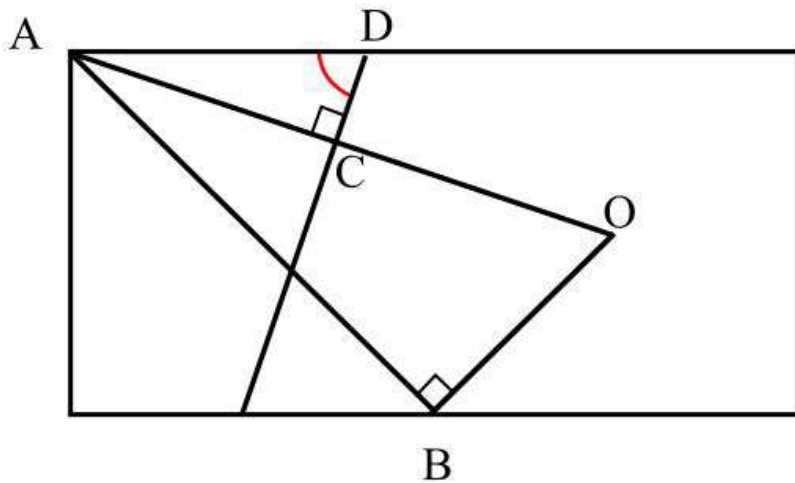
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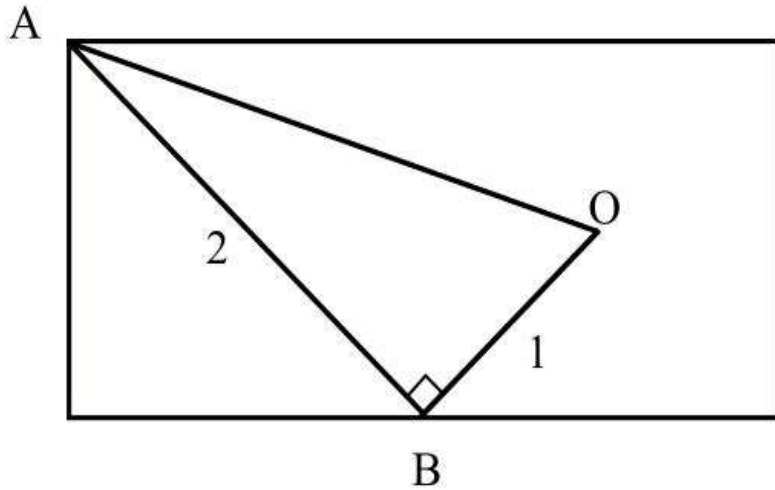
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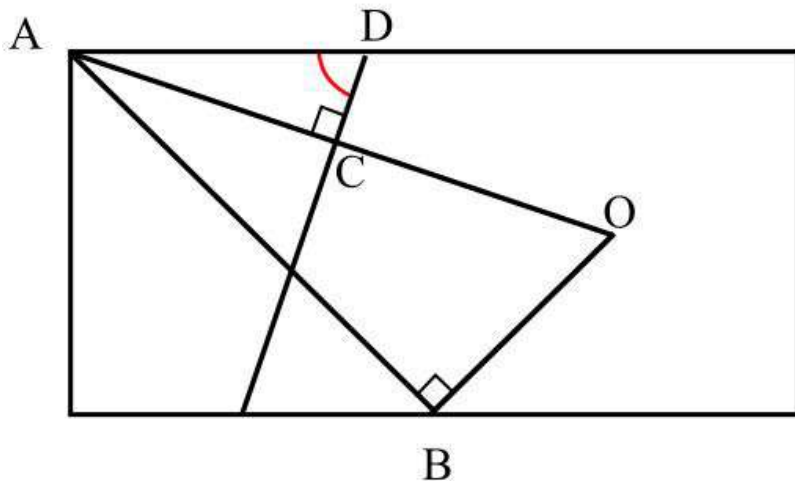
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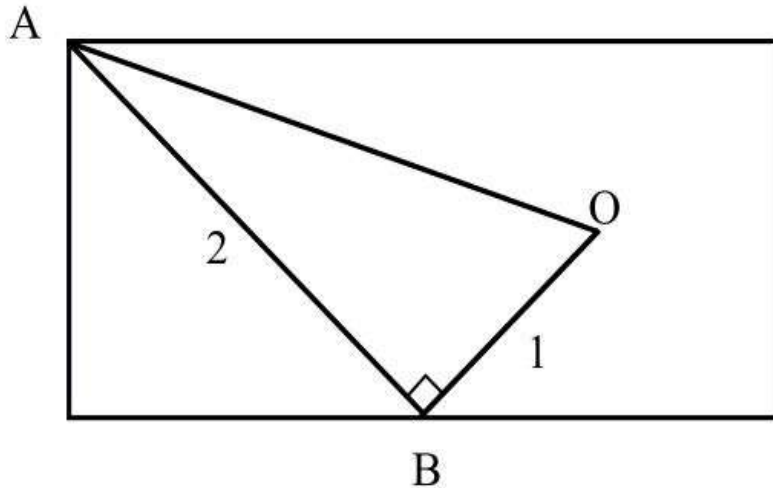
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$$\hat{CAD} = \hat{BAD} - \hat{BAO} = 45^\circ - \sim 27^\circ = \sim 18^\circ$$

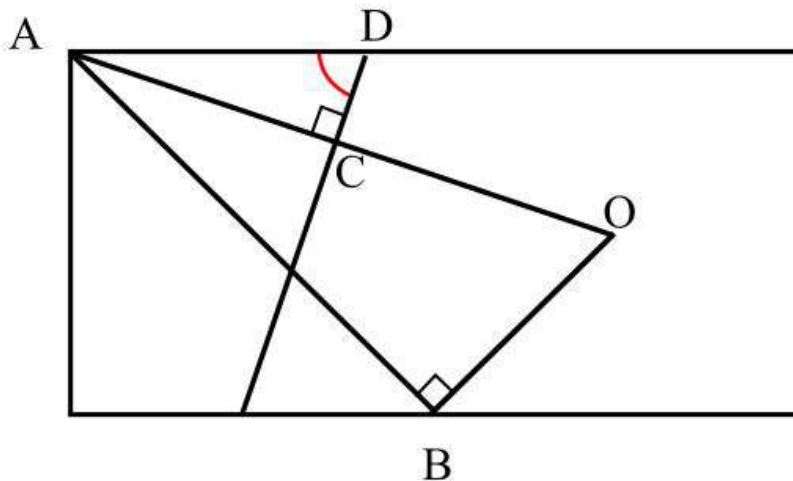
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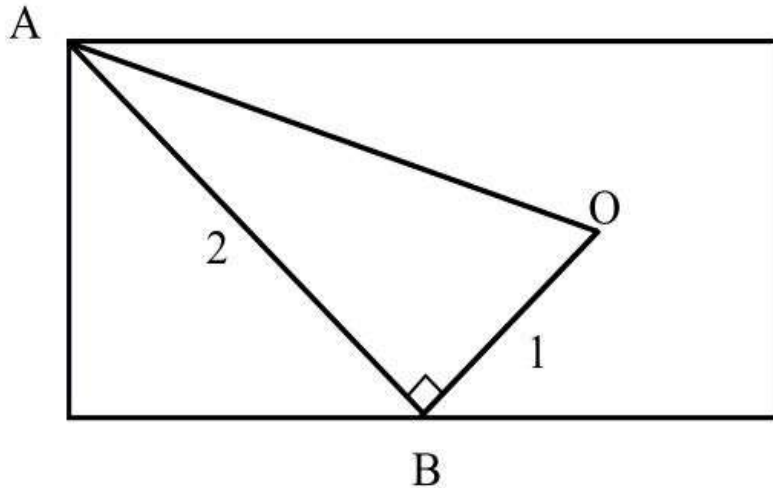
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$$\hat{C}AD = \hat{B}AD - \hat{B}AO = 45^\circ - \sim 27^\circ = \sim 18^\circ$$

$$\hat{A}DC = \hat{A}CD - \hat{C}AD = 90^\circ - \sim 18^\circ = \sim 72^\circ$$

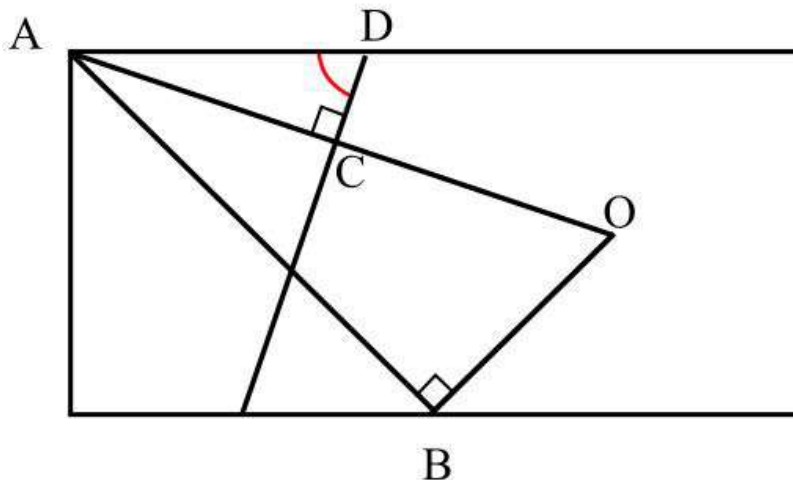
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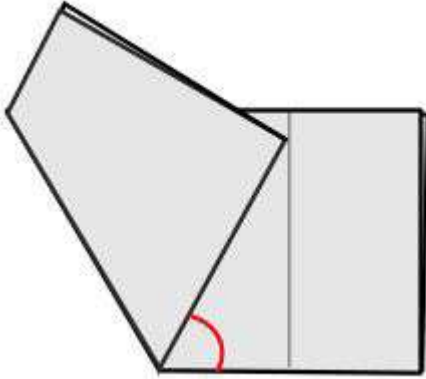
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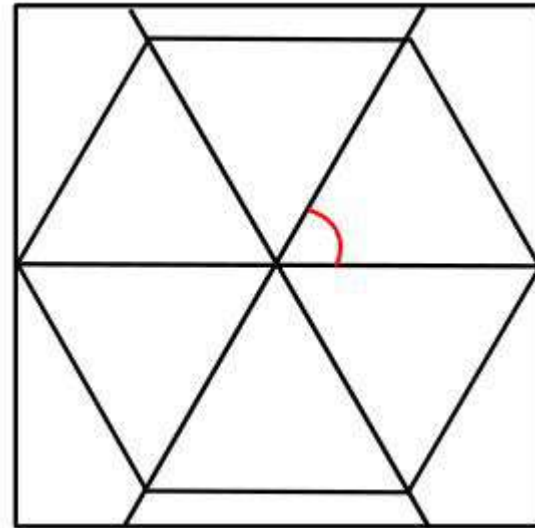
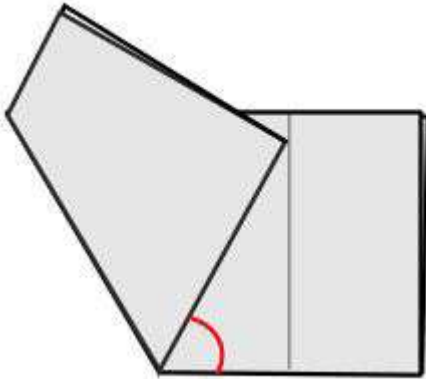
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5



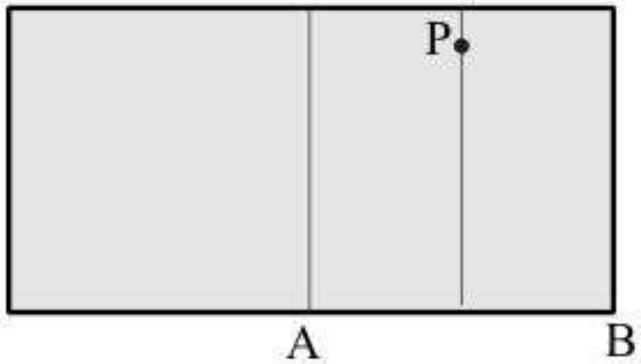
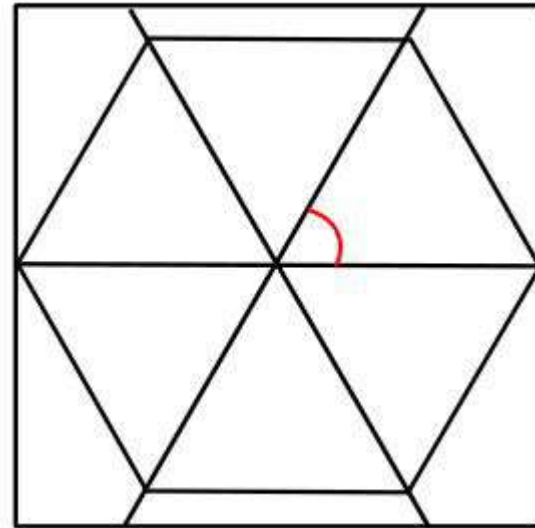
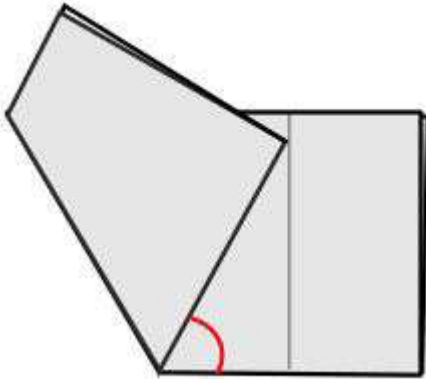
# Che esagono è?

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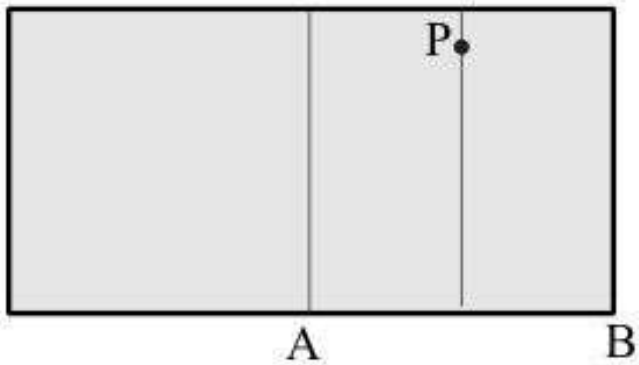
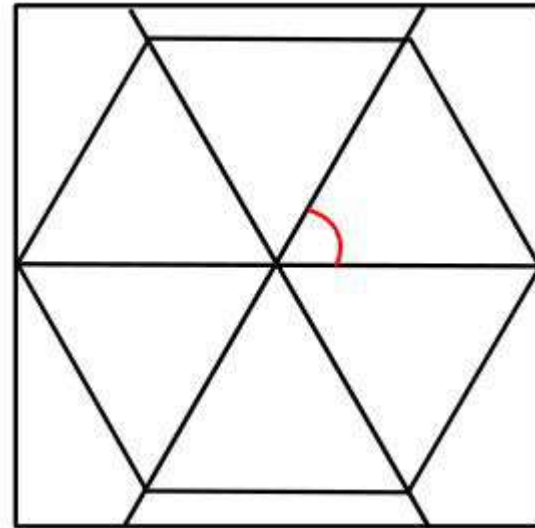
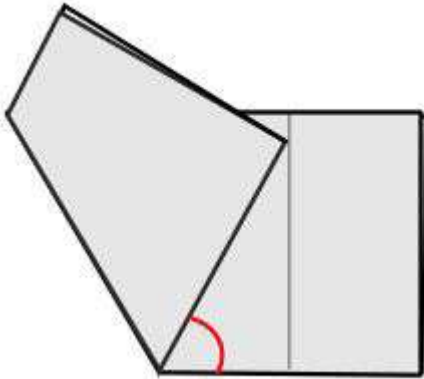
# Che esagono è?

5



# Che esagono è?

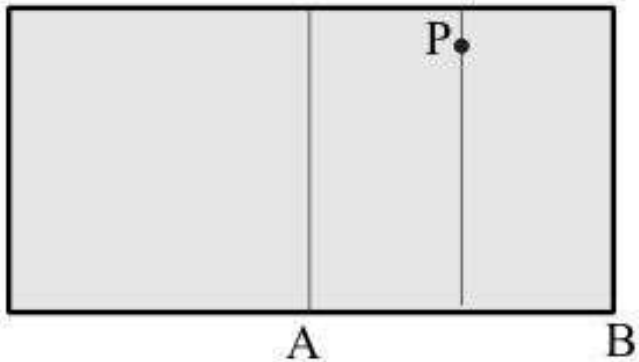
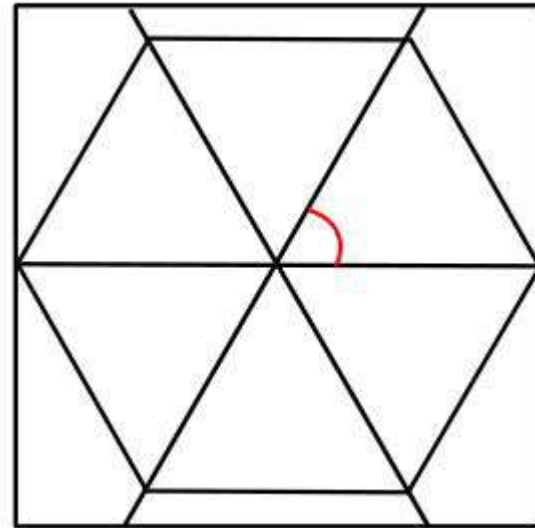
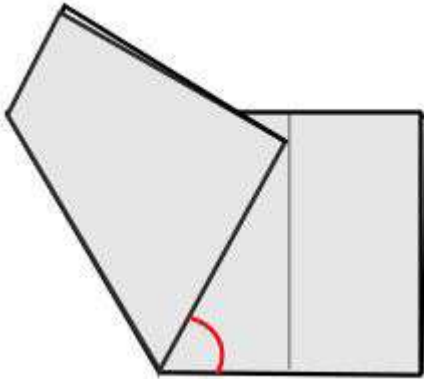
5



$$\overline{PA} = \overline{PB} = \overline{AB}$$

# Che esagono è?

5

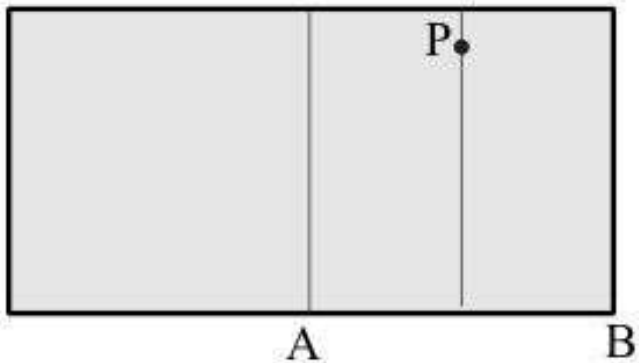
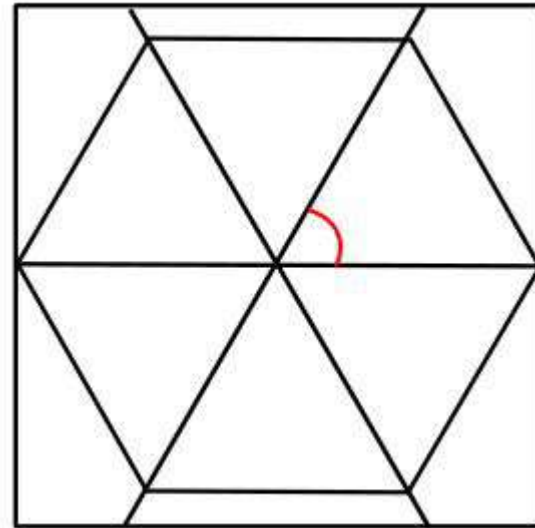
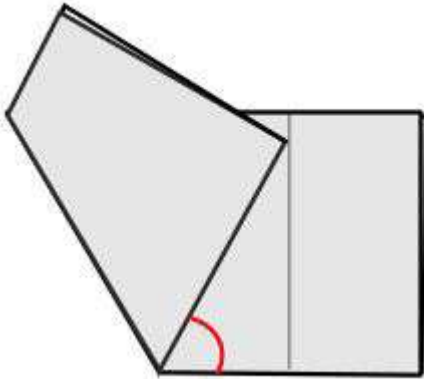


$$\overline{PA} = \overline{PB} = \overline{AB}$$

APB è un triangolo equilatero

# Che esagono è?

5



$$\overline{PA} = \overline{PB} = \overline{AB}$$

APB è un triangolo equilatero

**È un esagono regolare**

# Sitografia

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