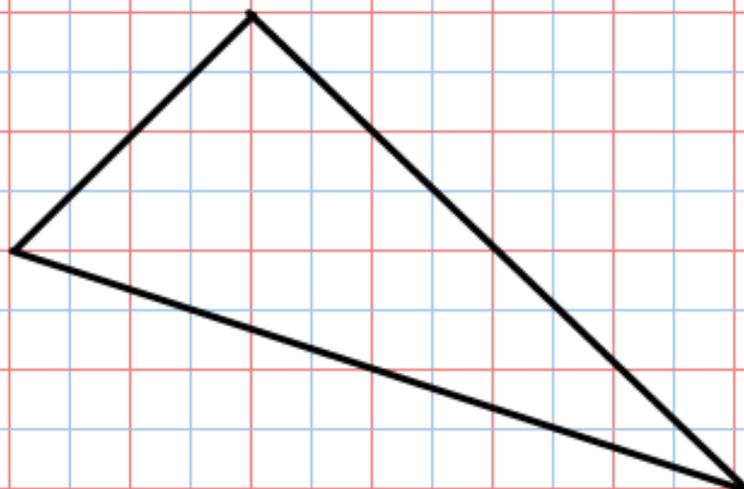
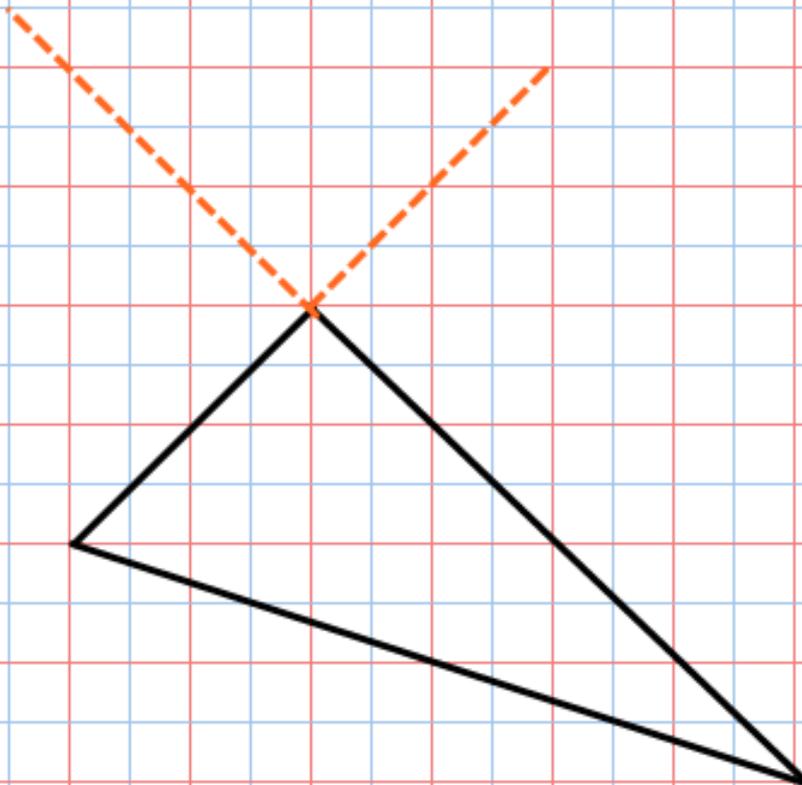


è un triangolo rettangolo?

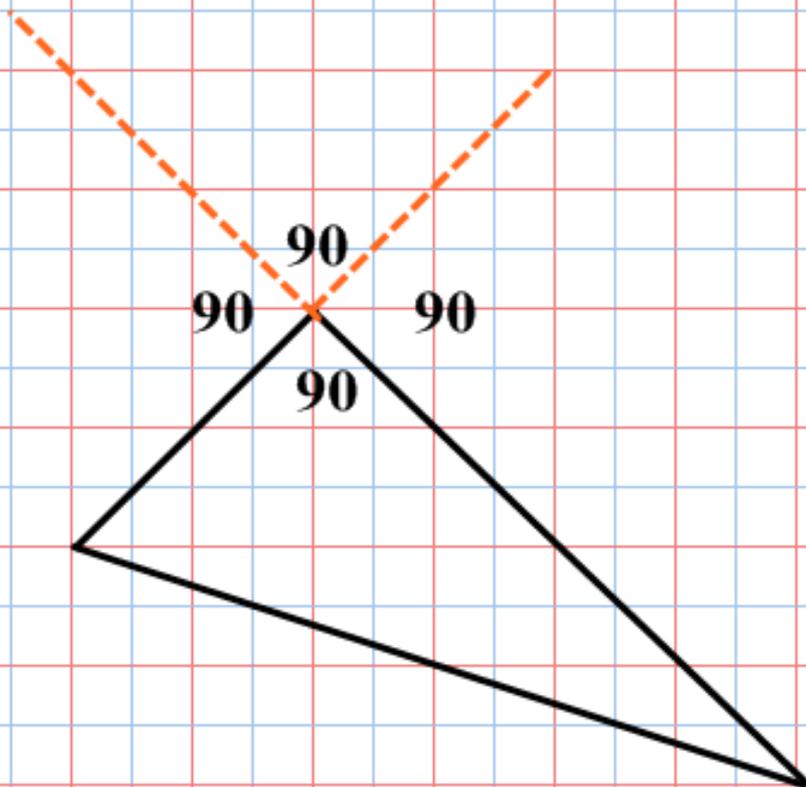


è un triangolo rettangolo?



se prolungo i suoi lati vedo 4 angoli uguali

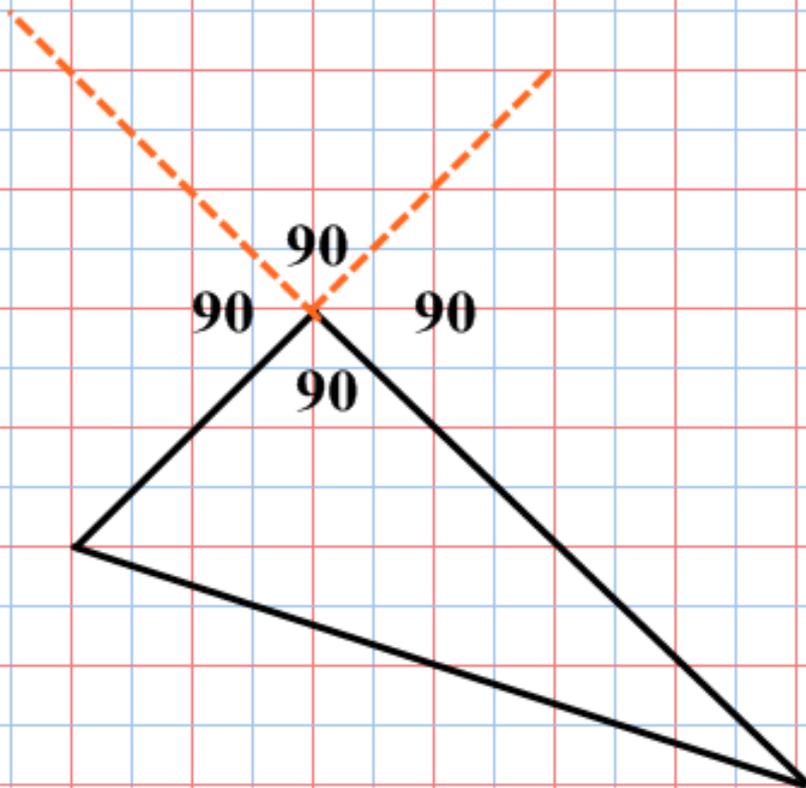
è un triangolo rettangolo?



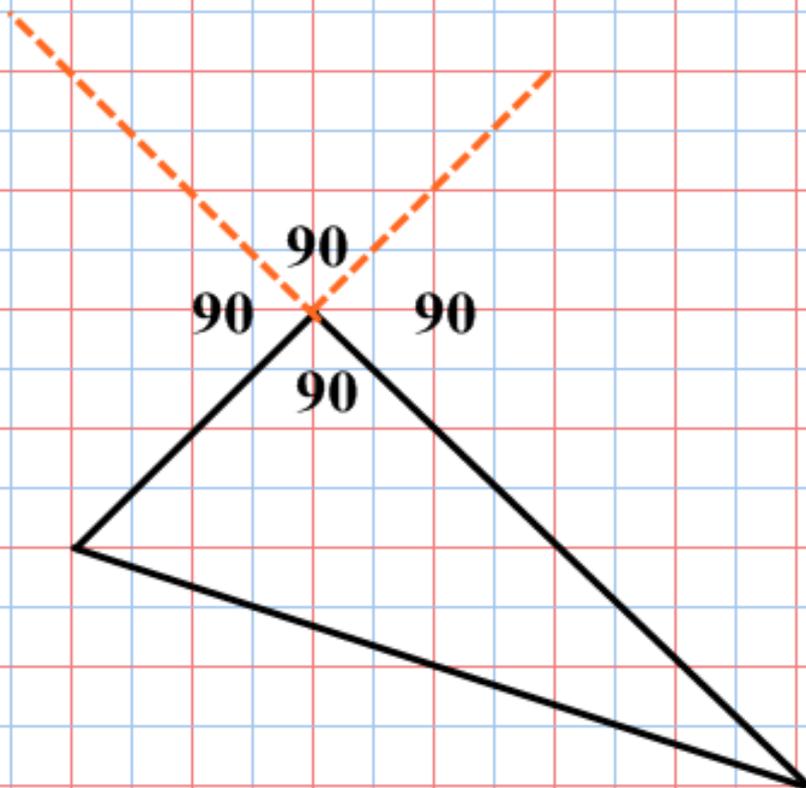
se prolungo i suoi lati vedo 4 angoli uguali

quindi retti

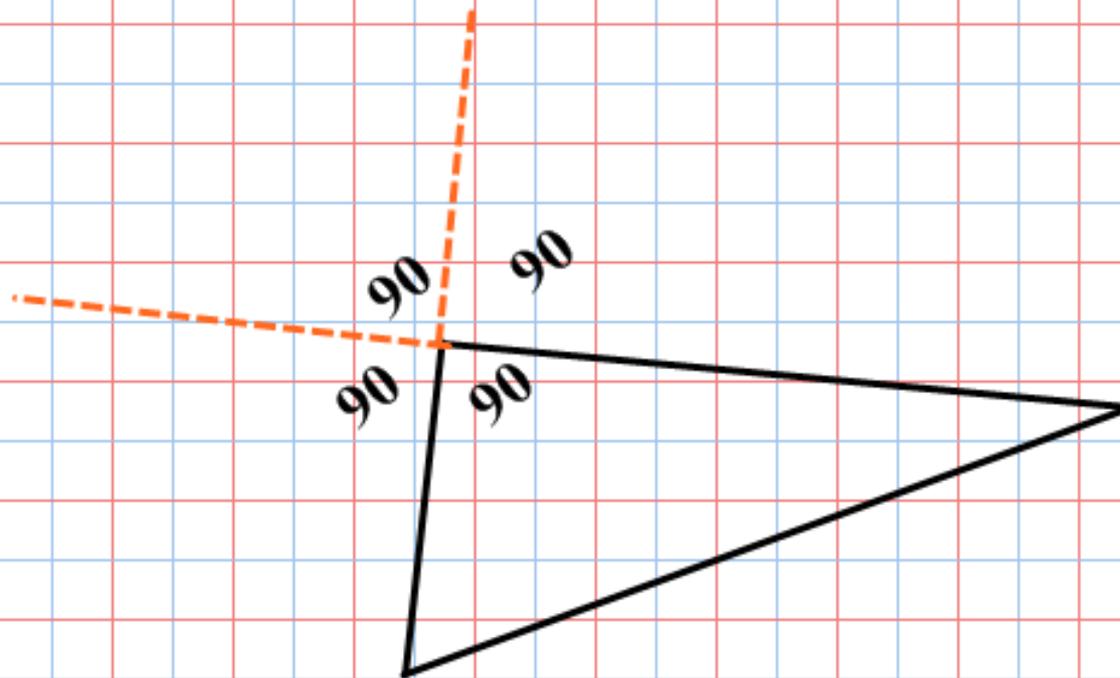
è un triangolo rettangolo?



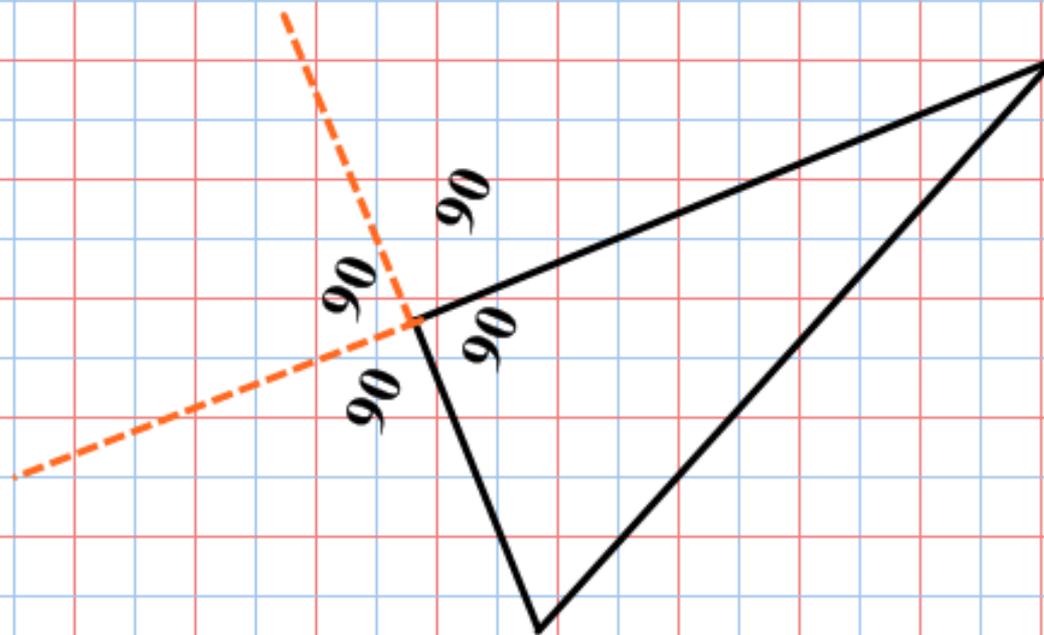
"se proprio non sono sicuro posso ruotarlo" dice Dario



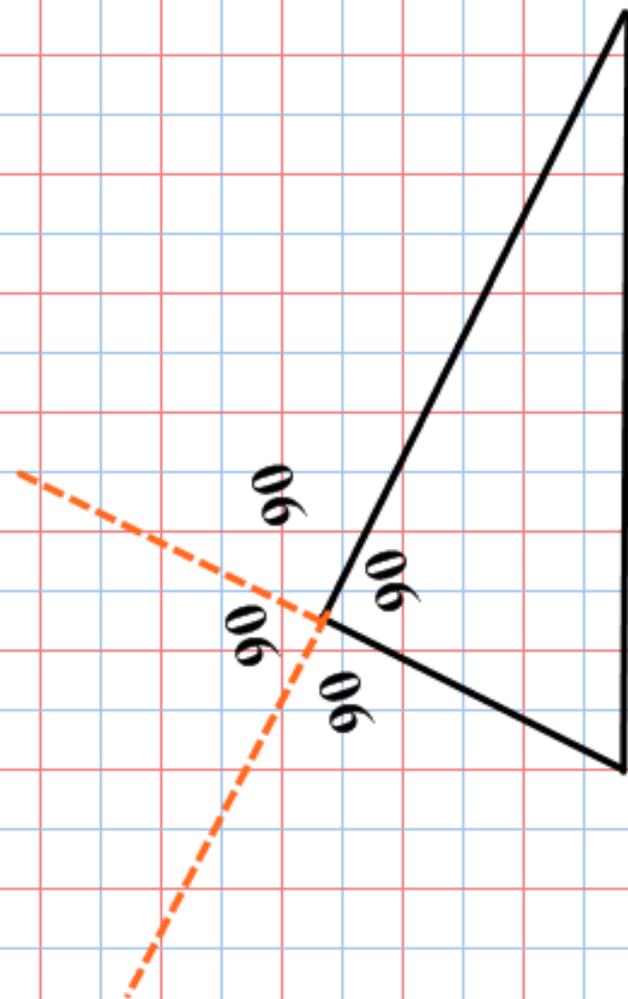
e con il quaderno o la L.I.M. posso farlo



e con il quaderno o la L.I.M. posso farlo

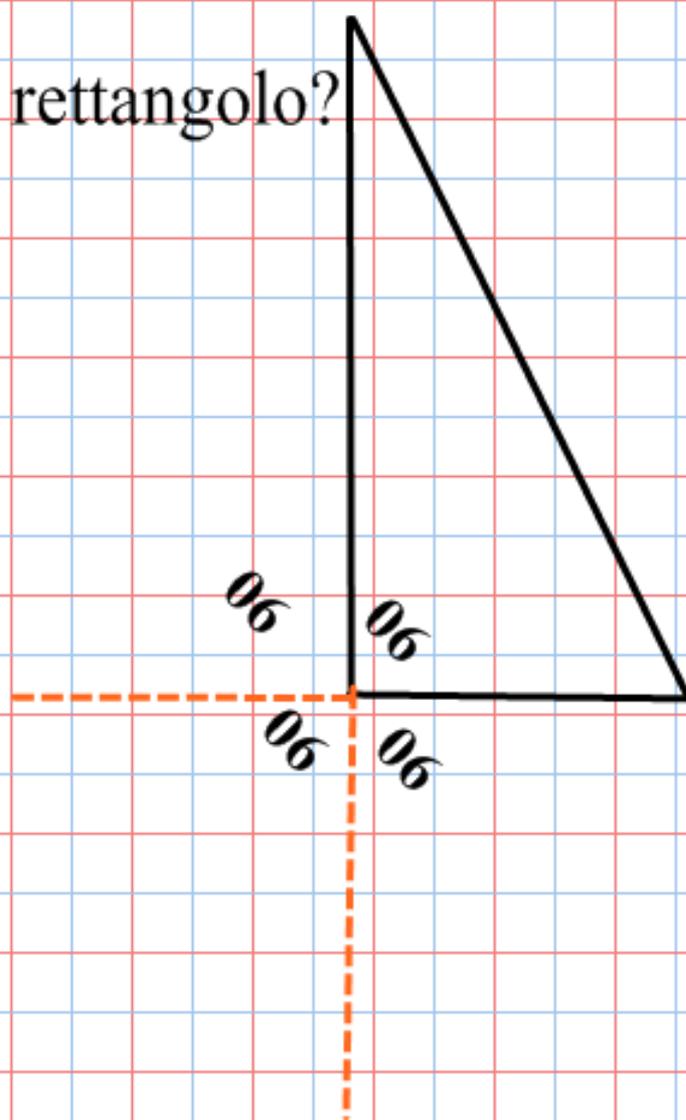


e con il quaderno o la L.I.M. posso farlo



e con il quaderno o la L.I.M. posso farlo

è un triangolo rettangolo?

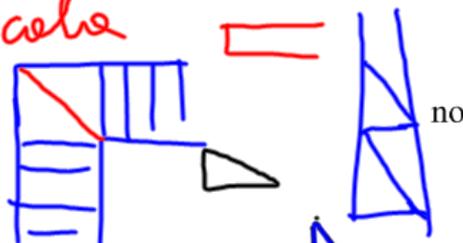


adesso se controllo rispetto al reticolo vedo che l'angolo è retto

In quali oggetti intorno a me posso riconoscere il triangolo rettangolo?



Tronchessino

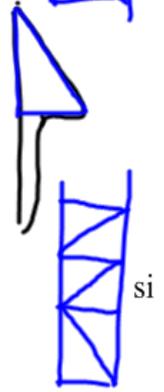


Sciolo



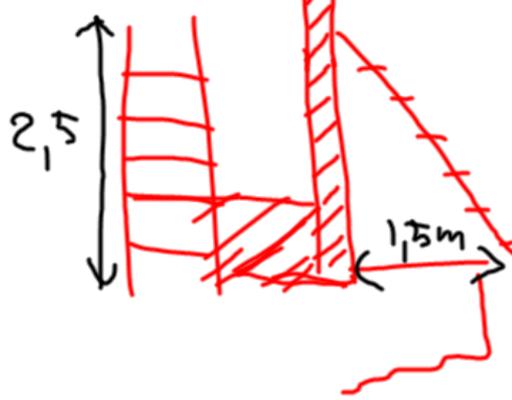
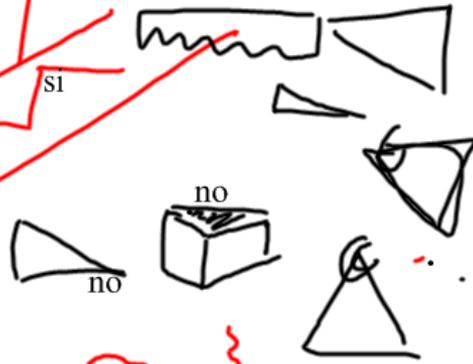
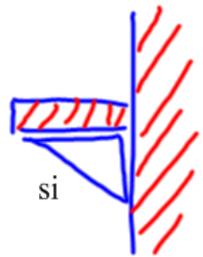
arnice?  
scatolo?

Squadra



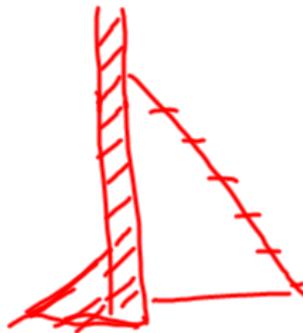
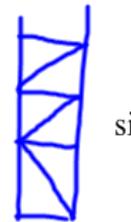
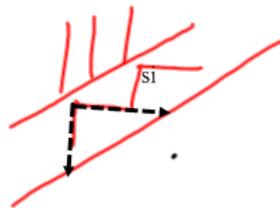
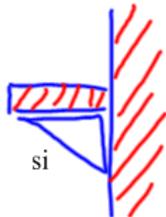
una parte del 4

Testo Volume

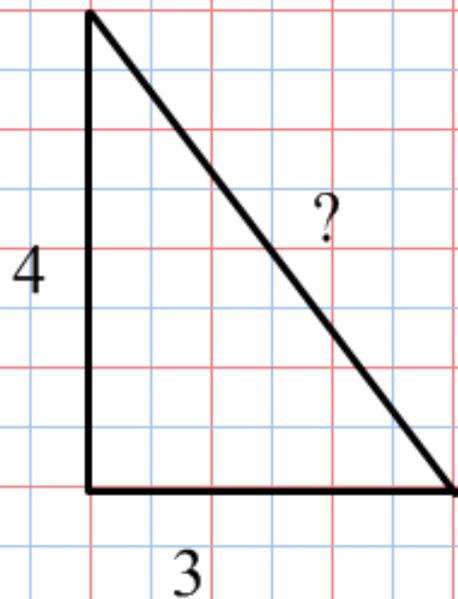


# riordiniamo i nostri appunti

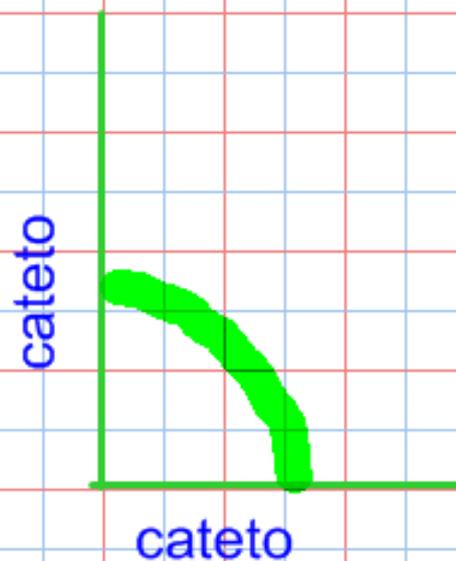
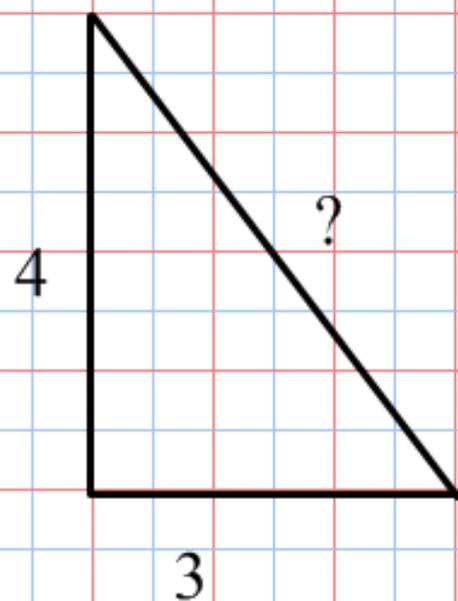
Tronmessino  
Squadre Scivolo  
una parte del 4  
Testo Volume



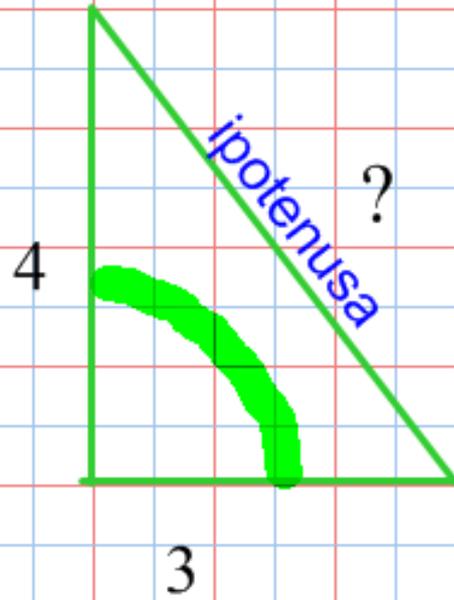
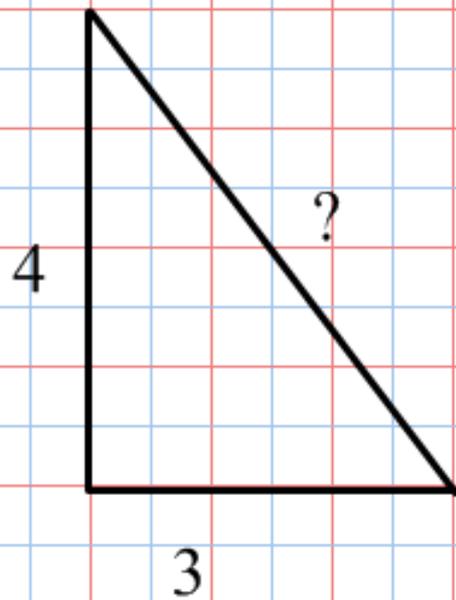
Quali legami esistono tra i lati di un triangolo rettangolo?



se sono definiti l'angolo retto e i suoi due lati (cateti)  
il triangolo è uno solo

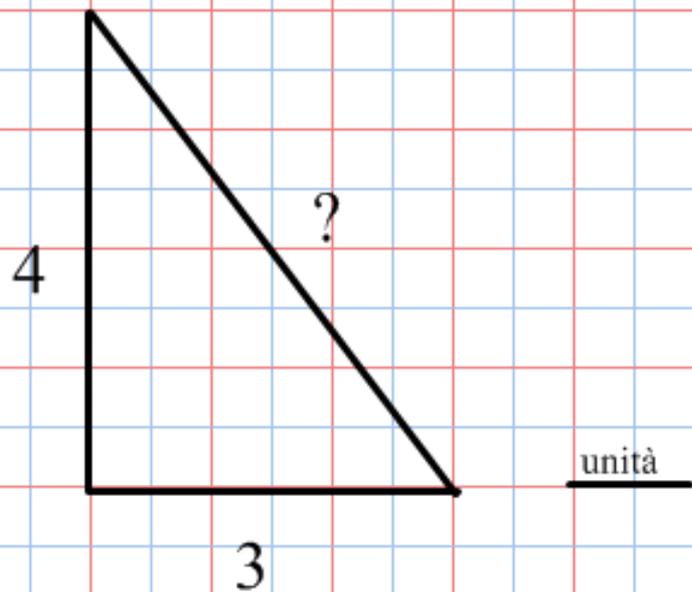


se sono definiti l'angolo retto e i suoi due lati (cateti)  
il triangolo è uno solo,  
quanto misura il terzo lato (ipotenusa)?

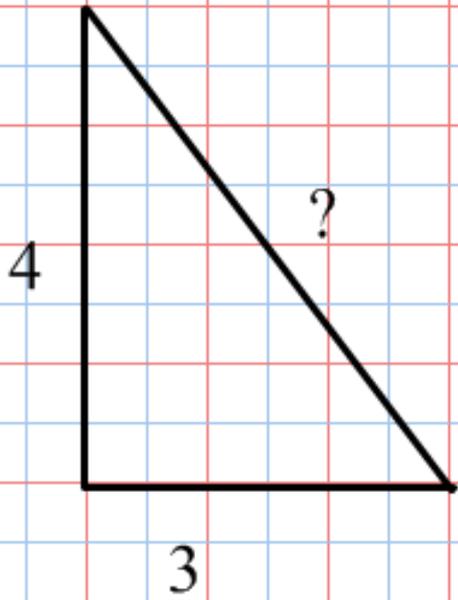


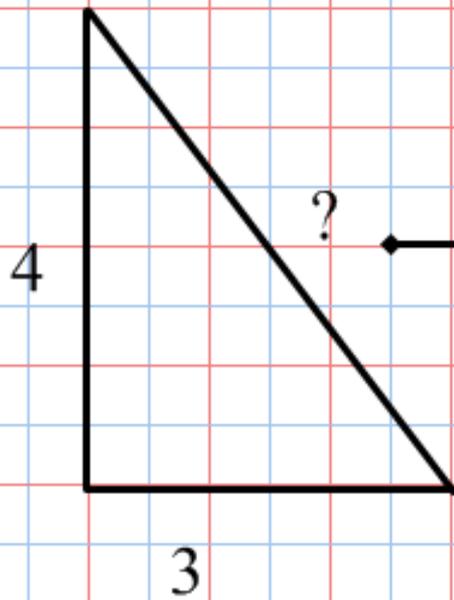
prova a disegnare questo triangolo sul tuo quaderno  
e a misurarne l'ipotenusa

(per avere la stessa unità strappa ed usa il bordo di un foglio del tuo stesso  
quaderno)



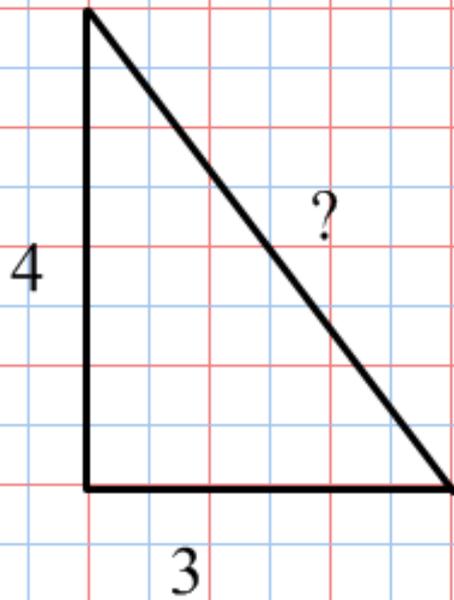
unità

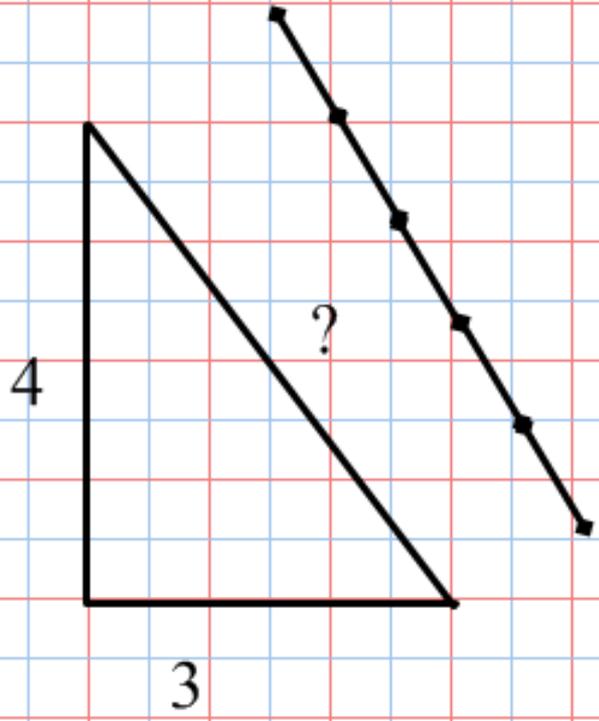


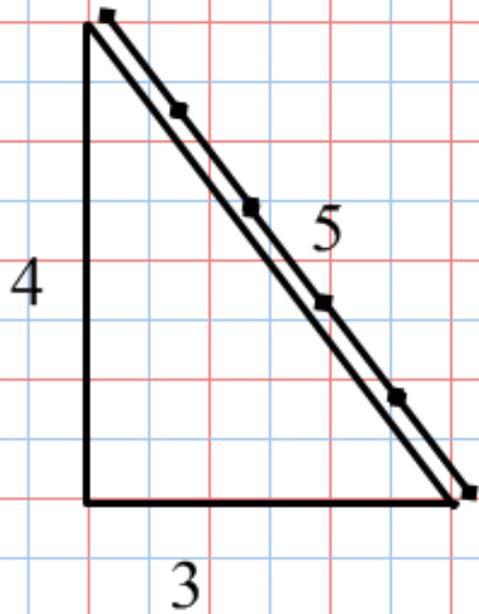


?

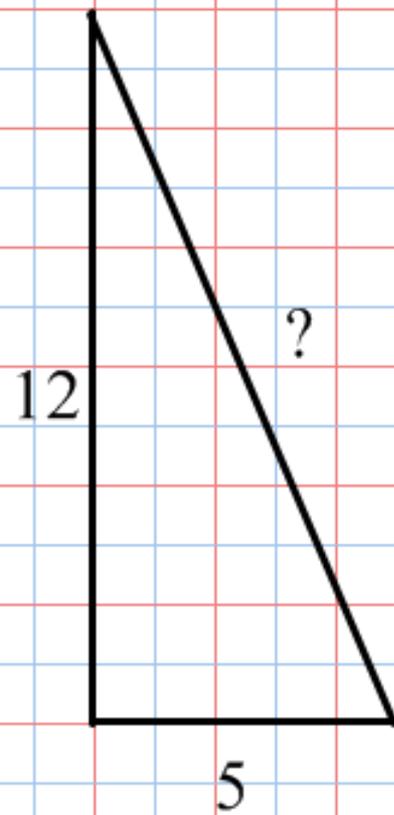




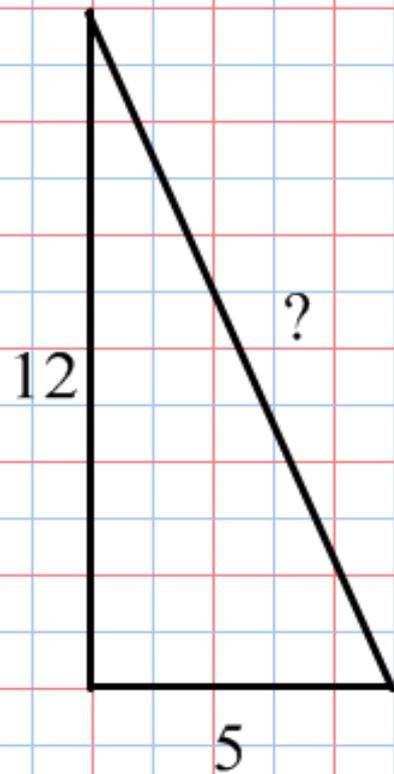




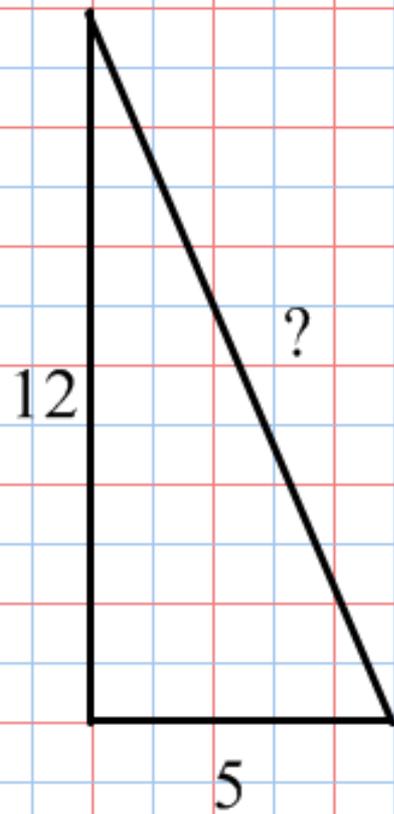
unità



unità



unità



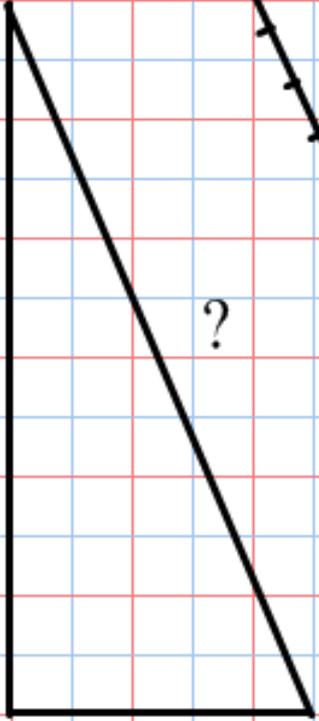
unità



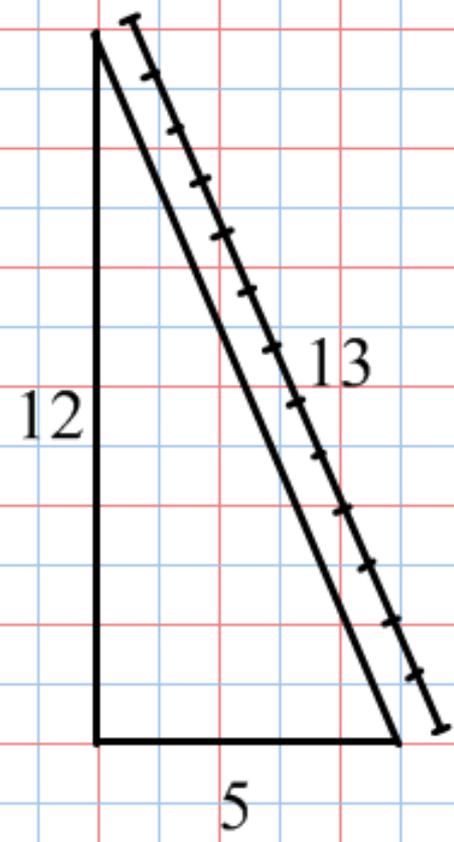
?

12

5



unità



se osservo le misure di alcuni di questi triangoli ...

cateto1	cateto 2	ipotenusa
3	4	5
5	12	13
6	8	10
7	24	25
9	12	....

se osservo le misure di alcuni di questi triangoli ...

cateto1	cateto 2	ipotenusa
3	4	5
5	12	13
6	8	10
7	24	25
9	12	....

*non riesco a capire!*

Pitagora ha scoperto un legame, non tra le  
misure dei lati ma tra  
**le aree dei quadrati** *costruiti sui lati*

# Chi era Pitagora?

ricerca informazioni su di lui

n. Samo (Metaponto)

famiglia benestante

buone istruzione

viaggi (Egitto, Babilonia...)

530 a.C. si stabilisce a Crotona: filosofo?

m. 490 a.C.

matematica

Scuola "pitagorica"

→ tradizione

orale

→ vietato lo scritto

una setta

riservata

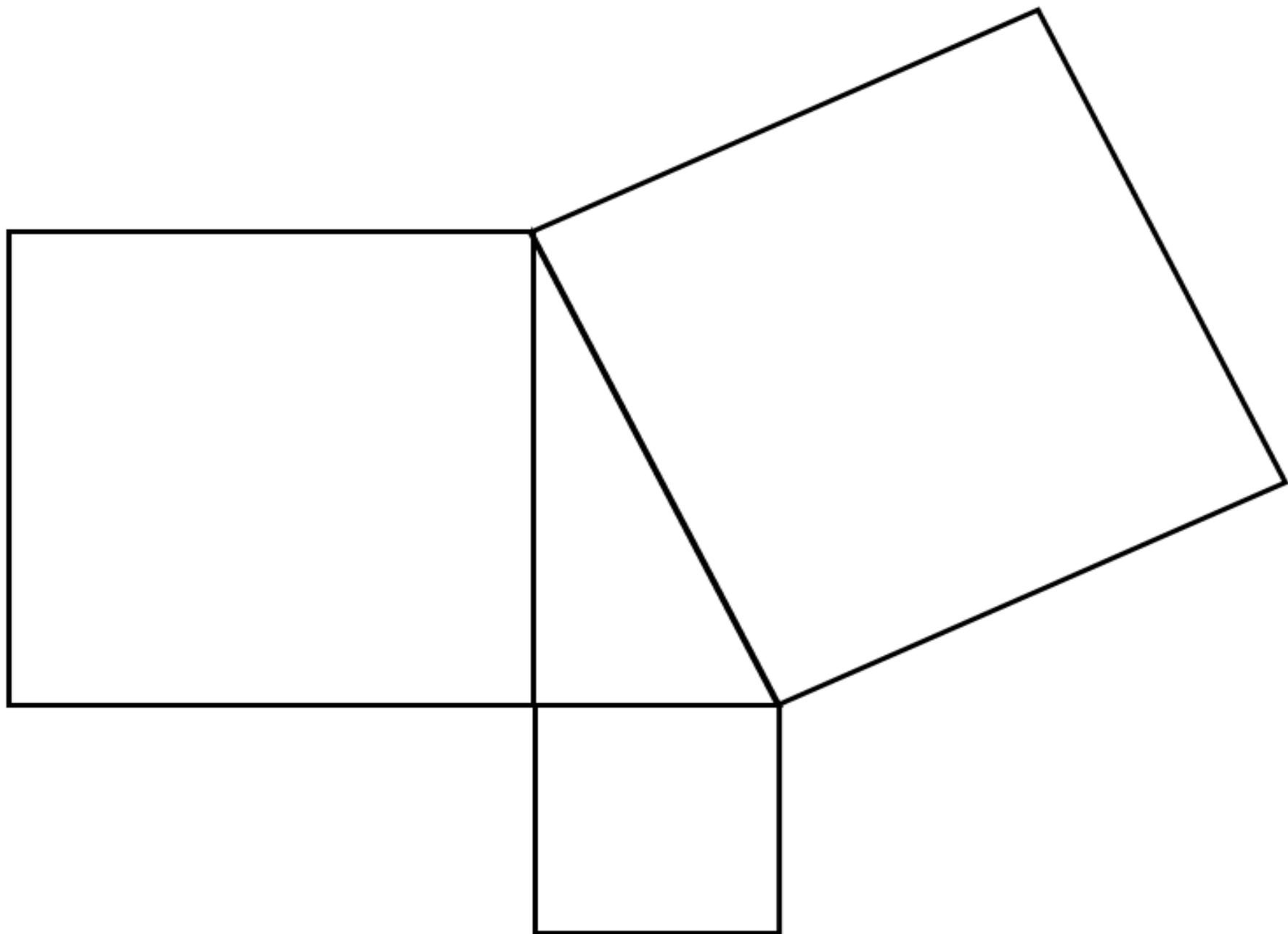
→ scuola "segreta", culti "MISTERICI"

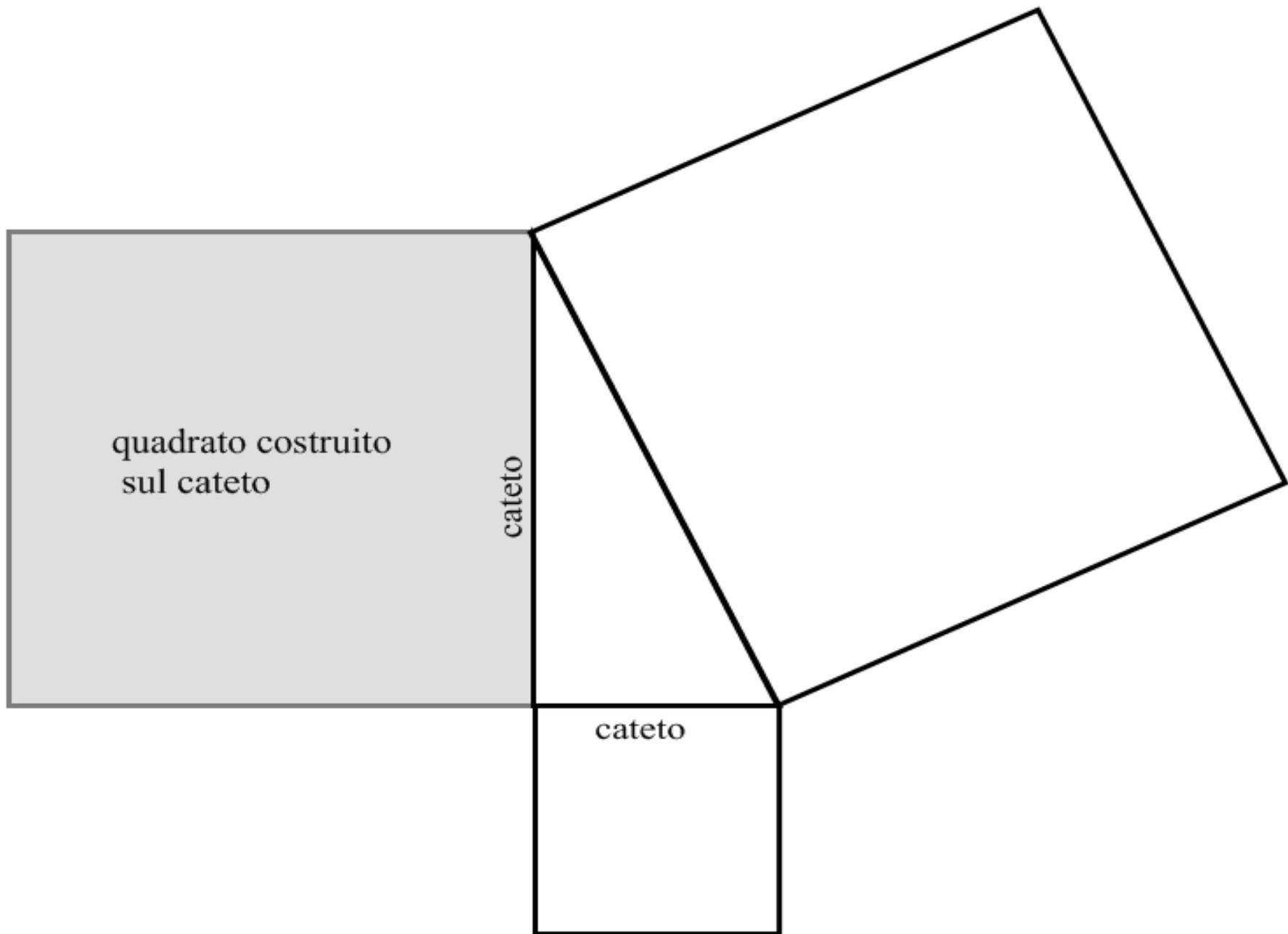
taole pitagorica

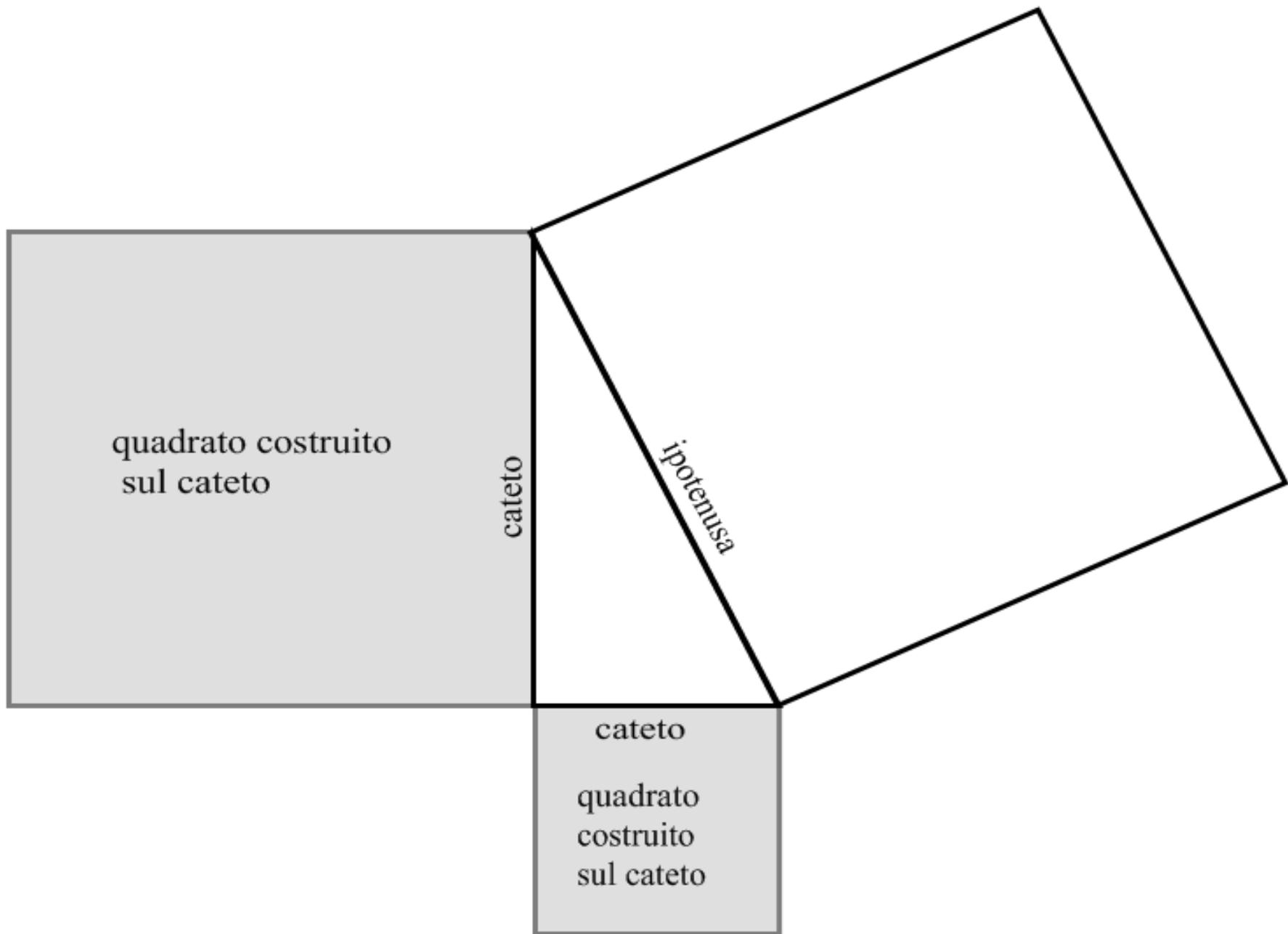
teorema di Pitagora (dimostrazione)

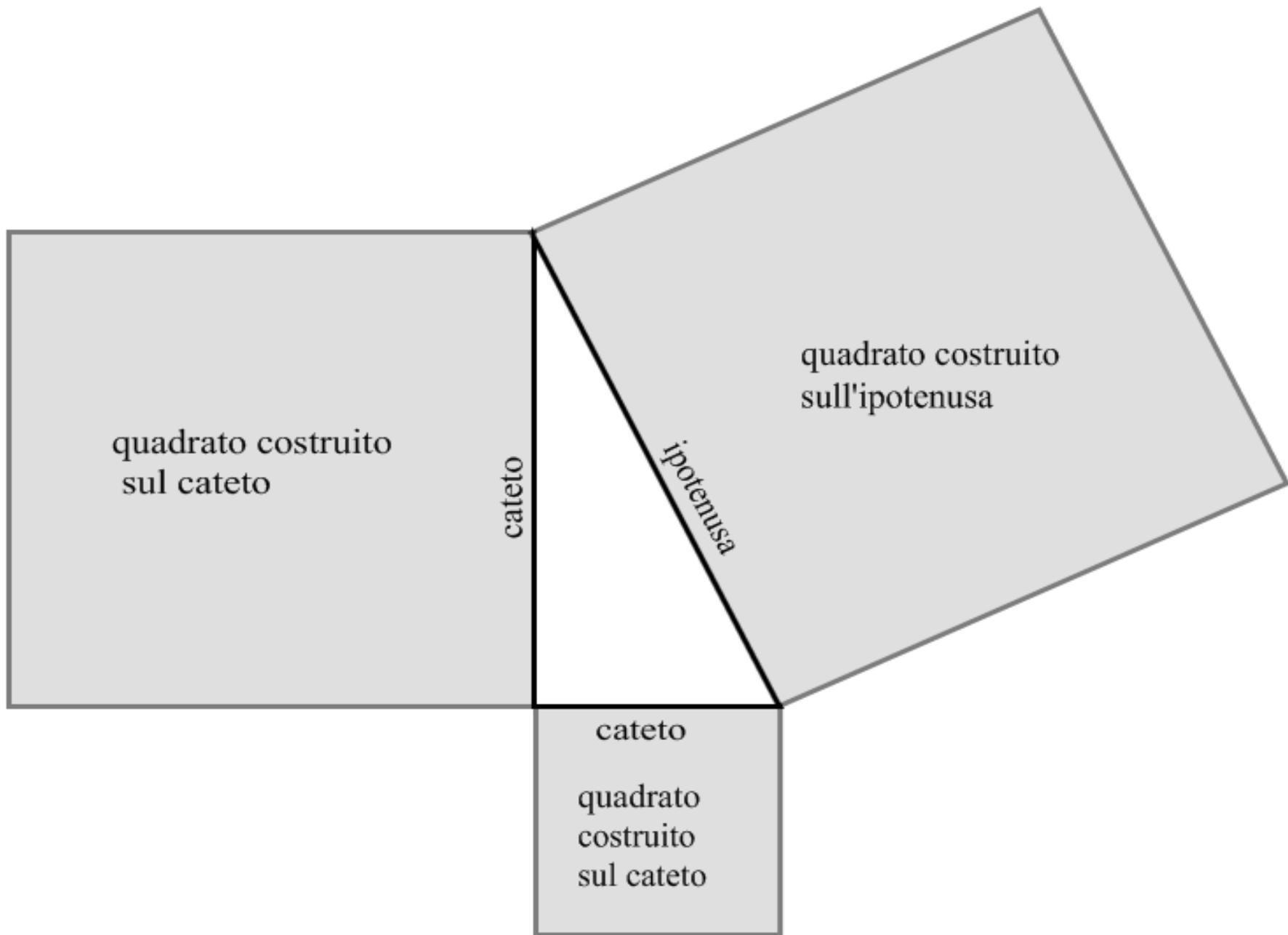
il teorema di Pitagora parla di  
**aree dei quadrati** *costruiti*  
*sui lati di un triangolo rettangolo*









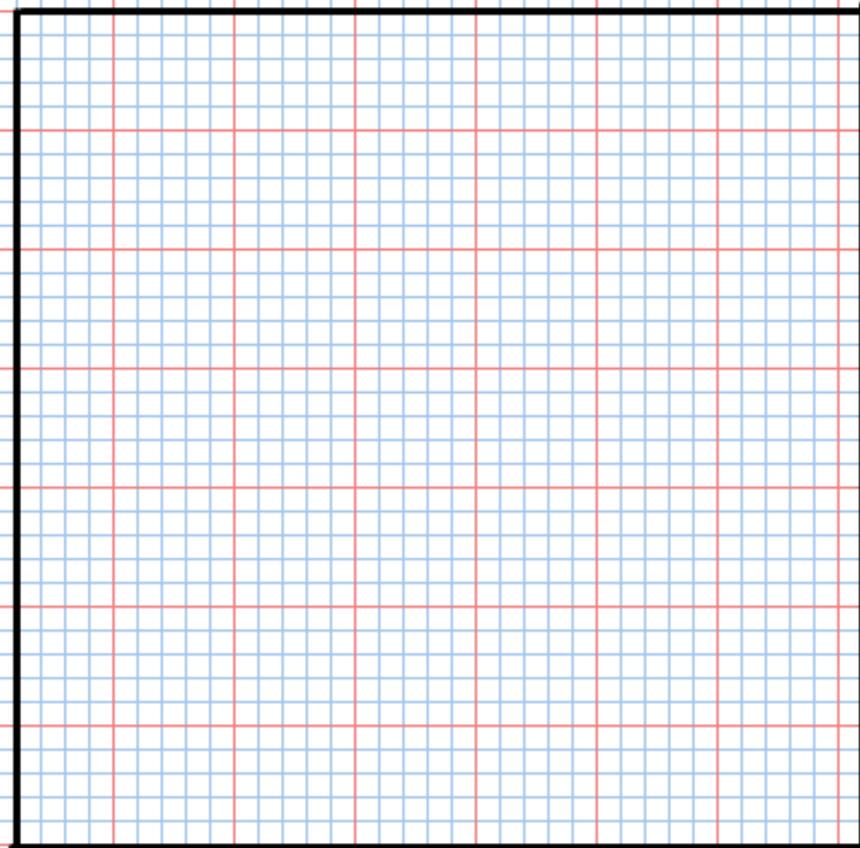
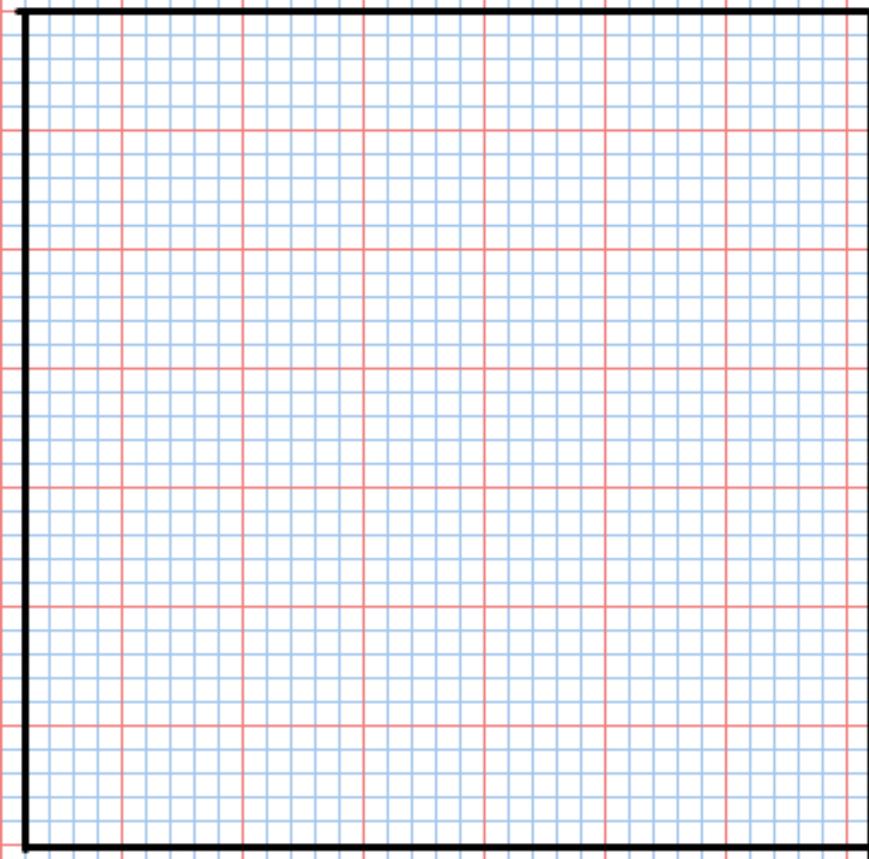


Ecco il suo ragionamento

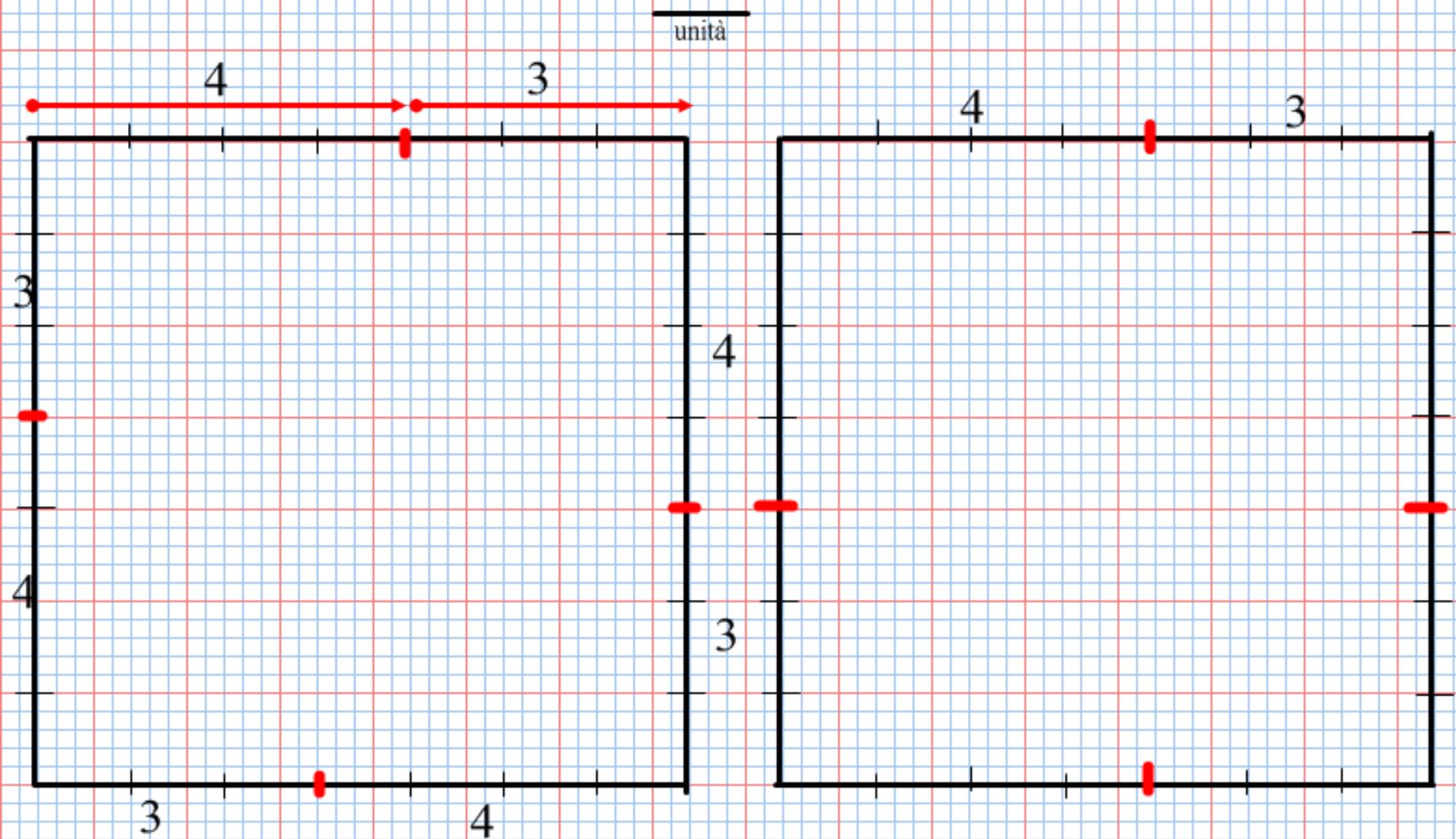
si parte con 2 quadrati uguali

i loro lati sono ad esempio di 7 unità

unità

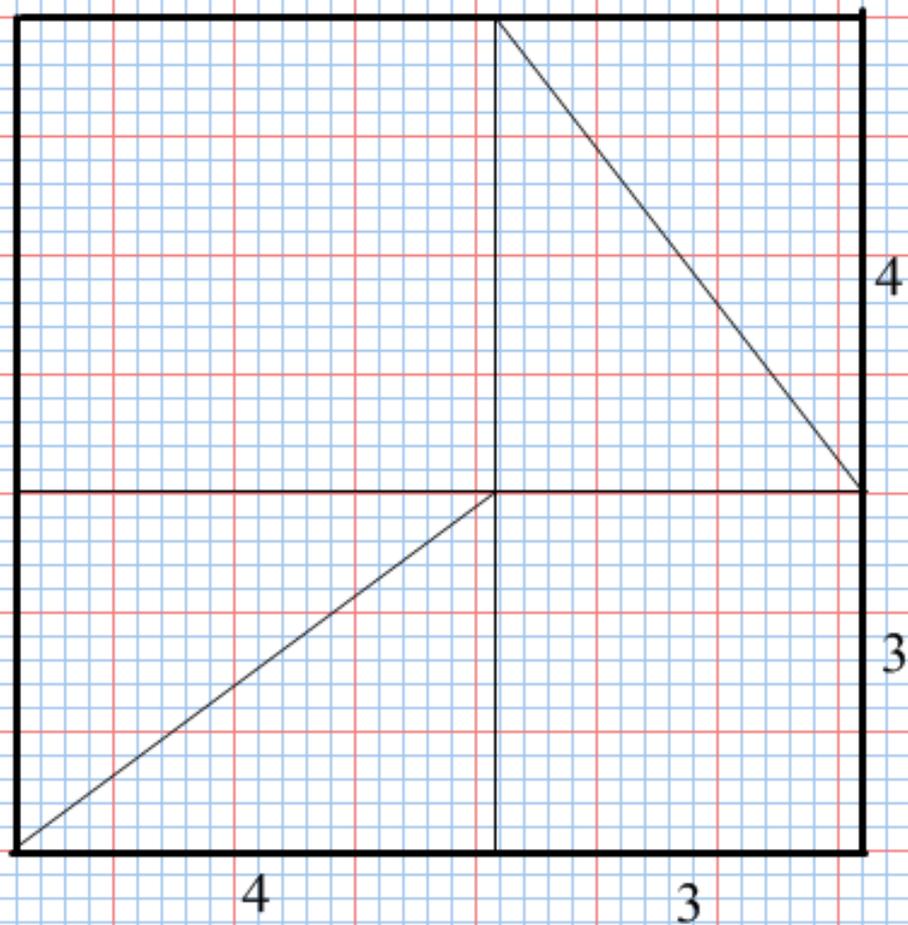
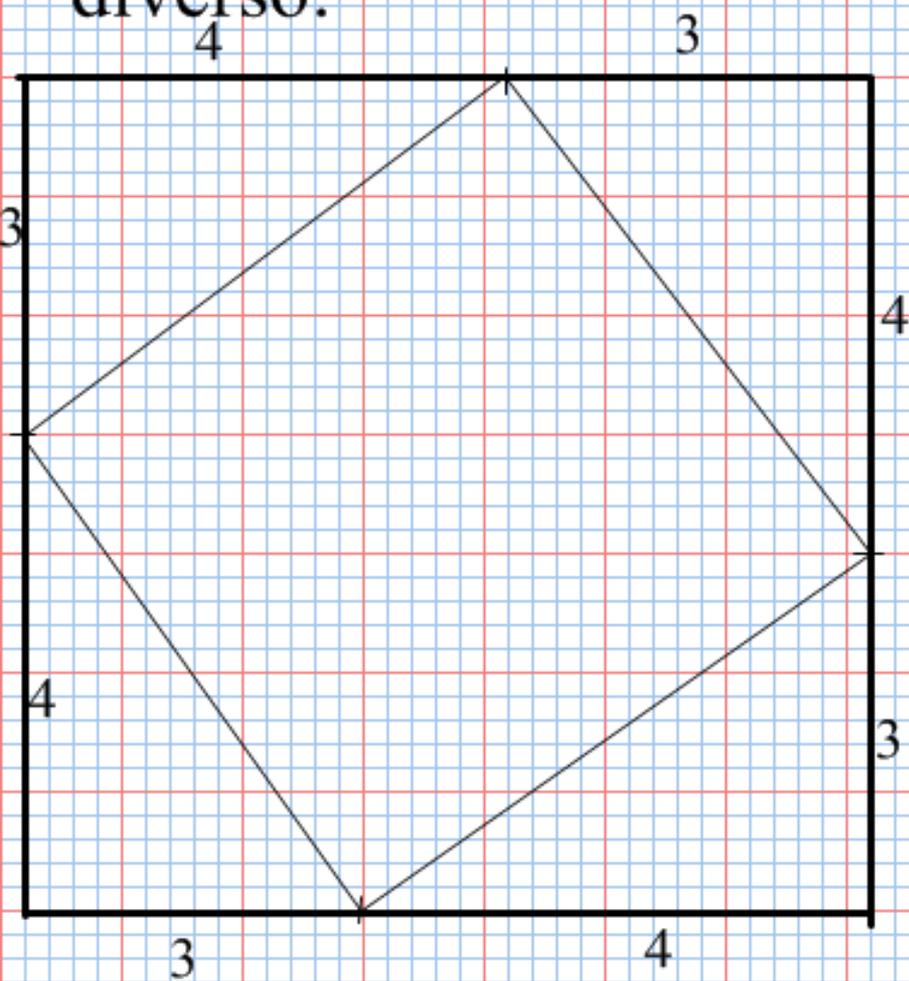


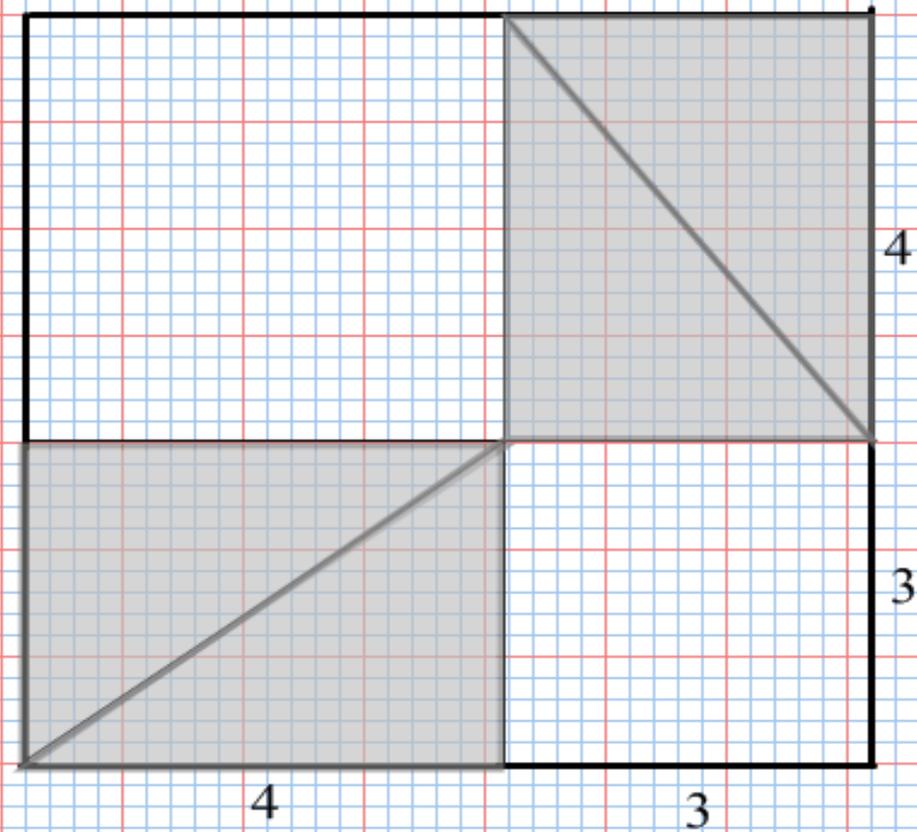
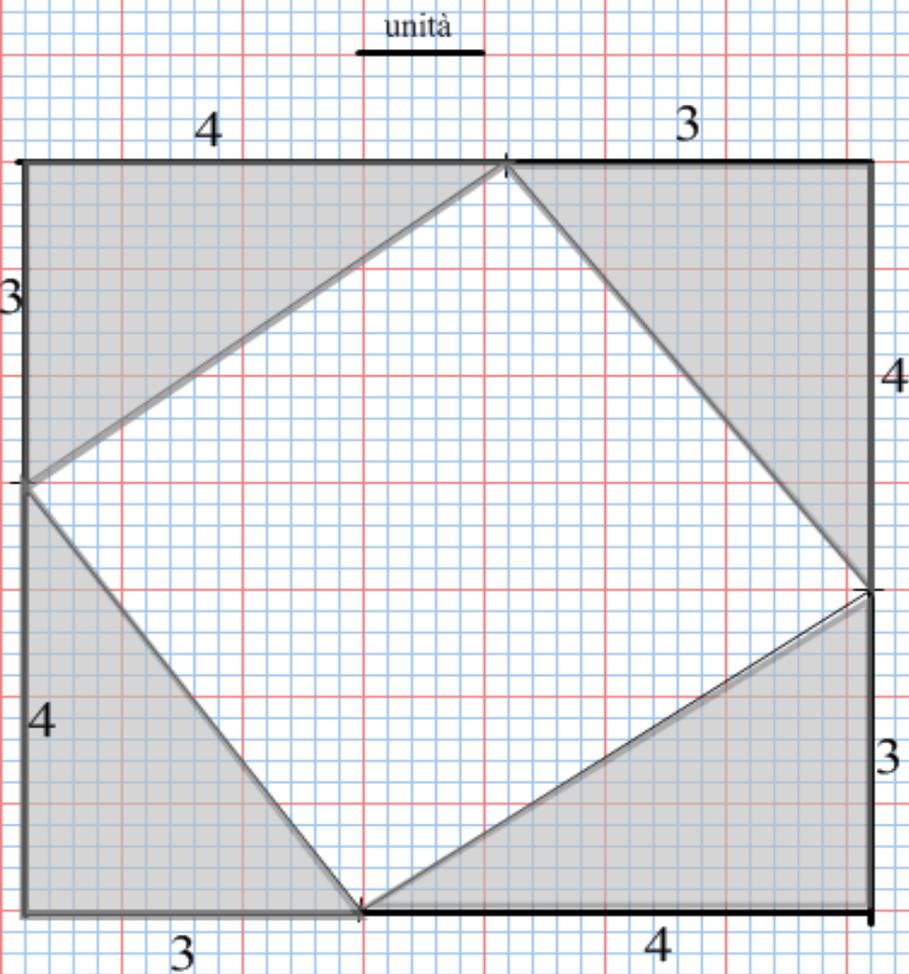
indietro



segnamo sui lati tacche in posizione diversa

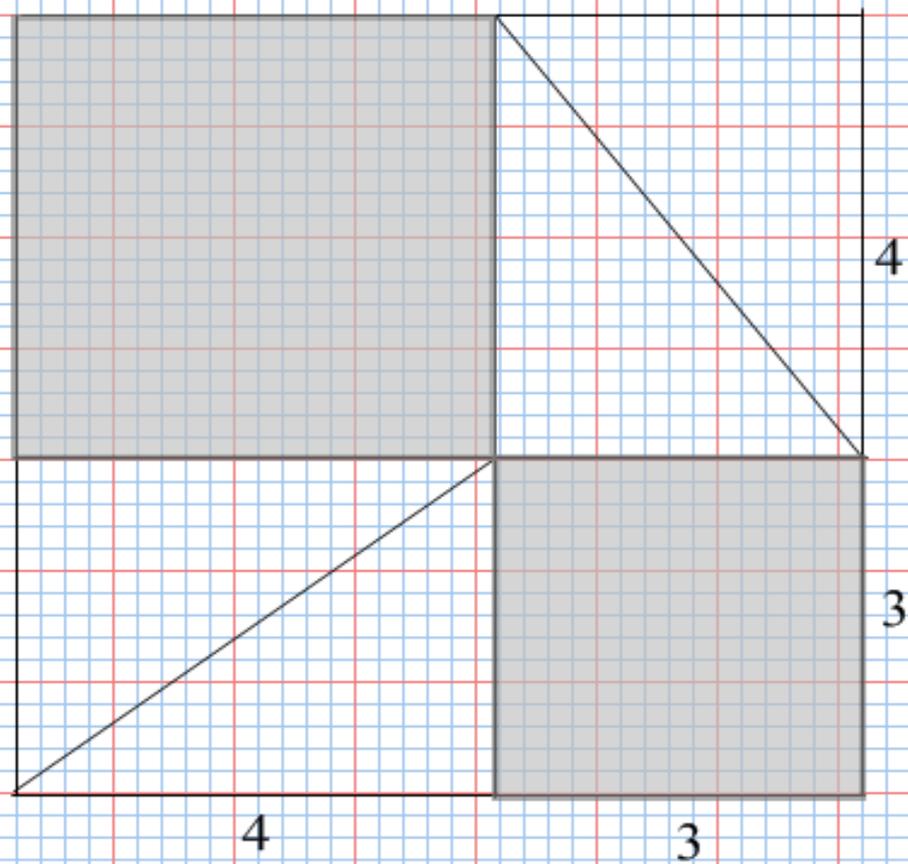
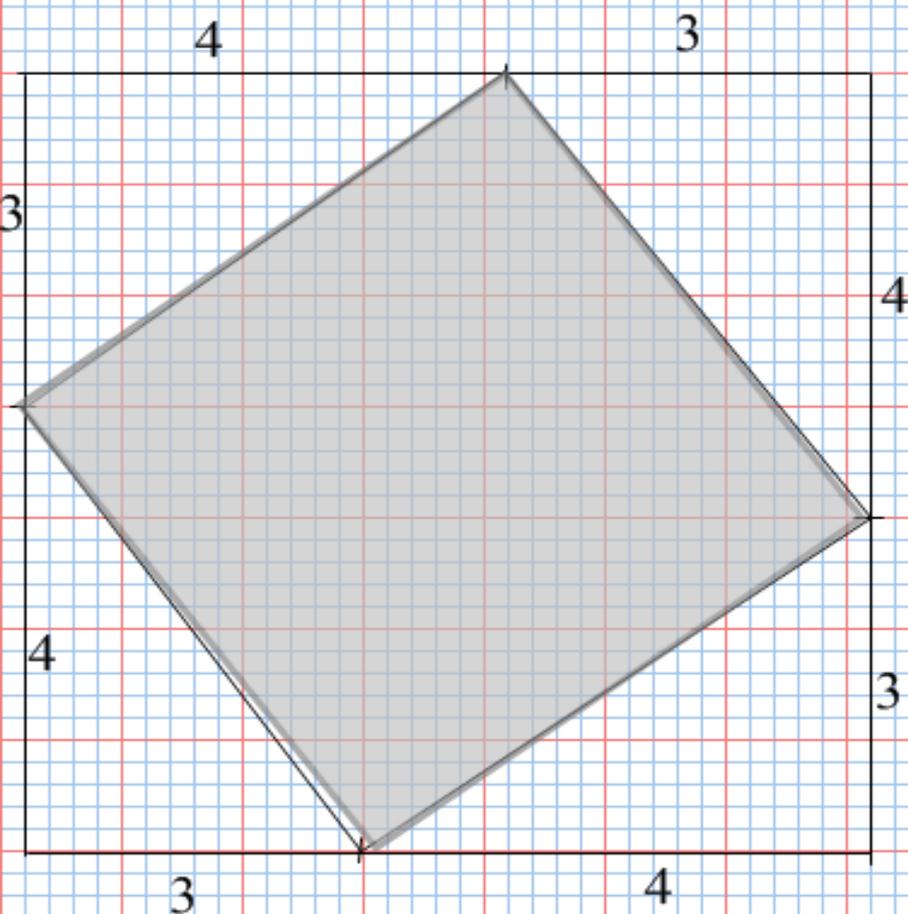
congiungendo le tacche, dividiamo i quadrati in modo diverso:



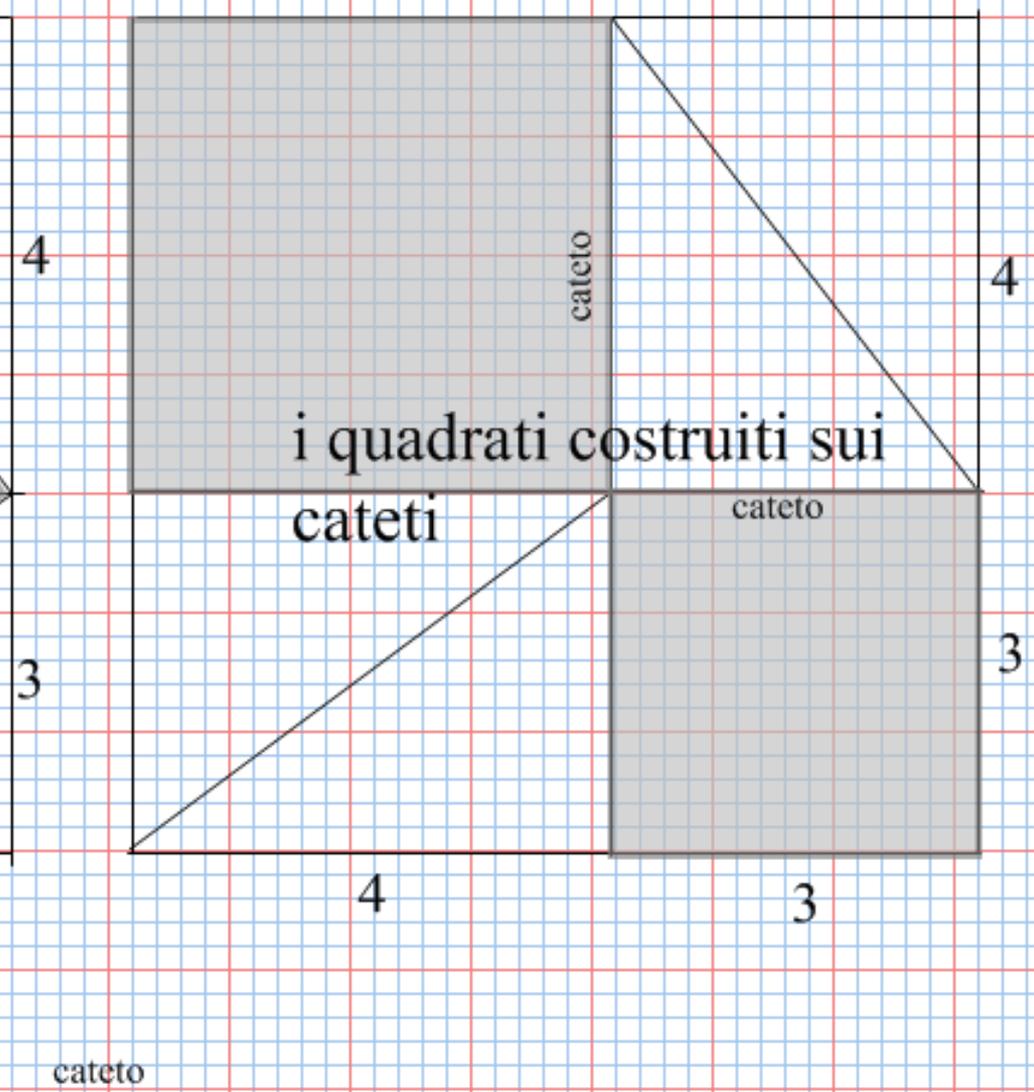
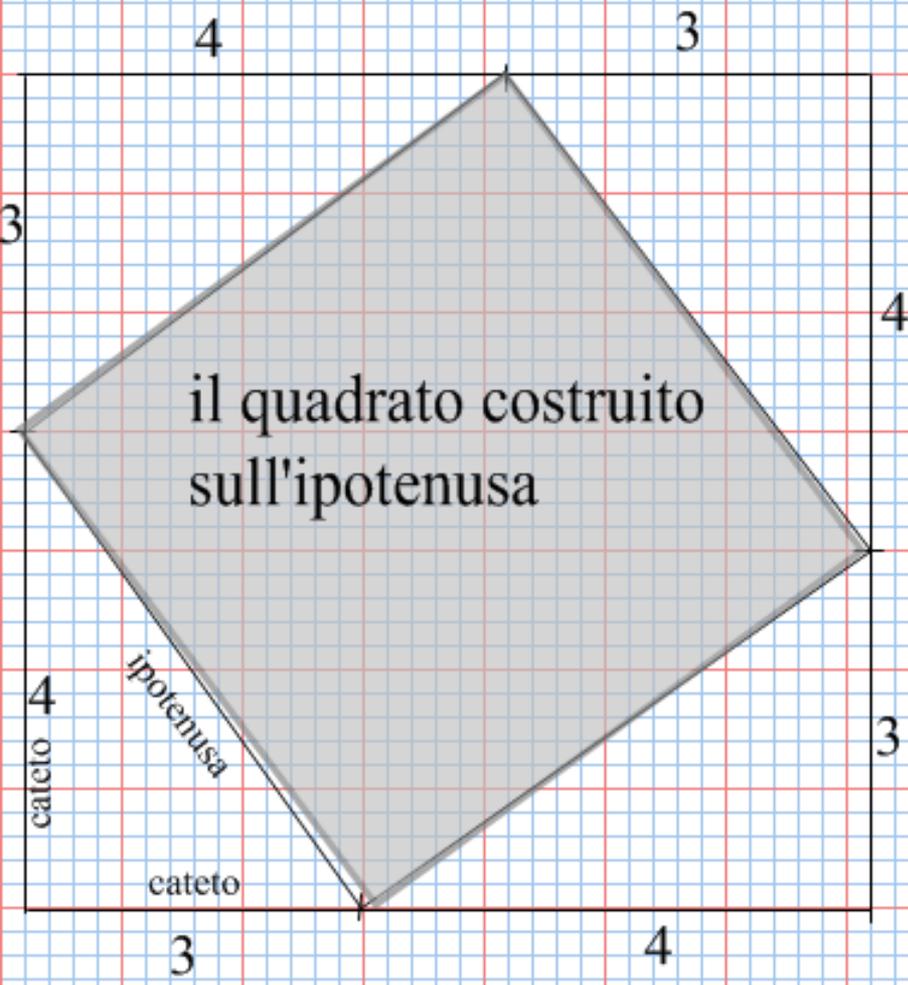


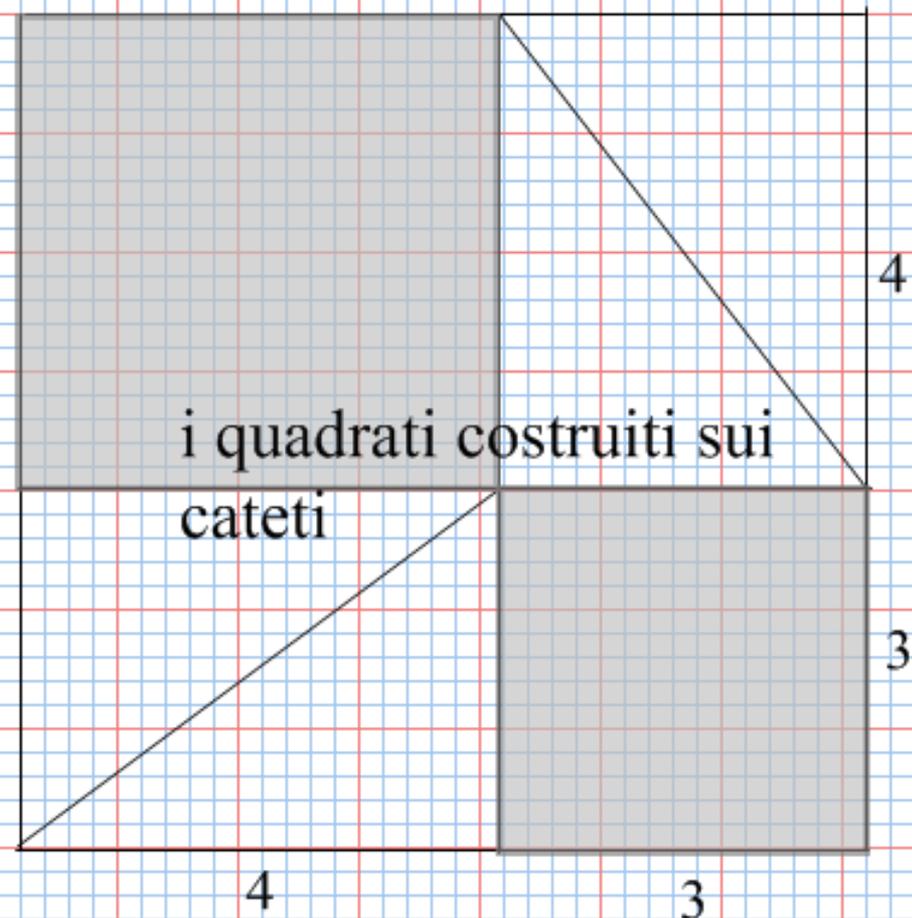
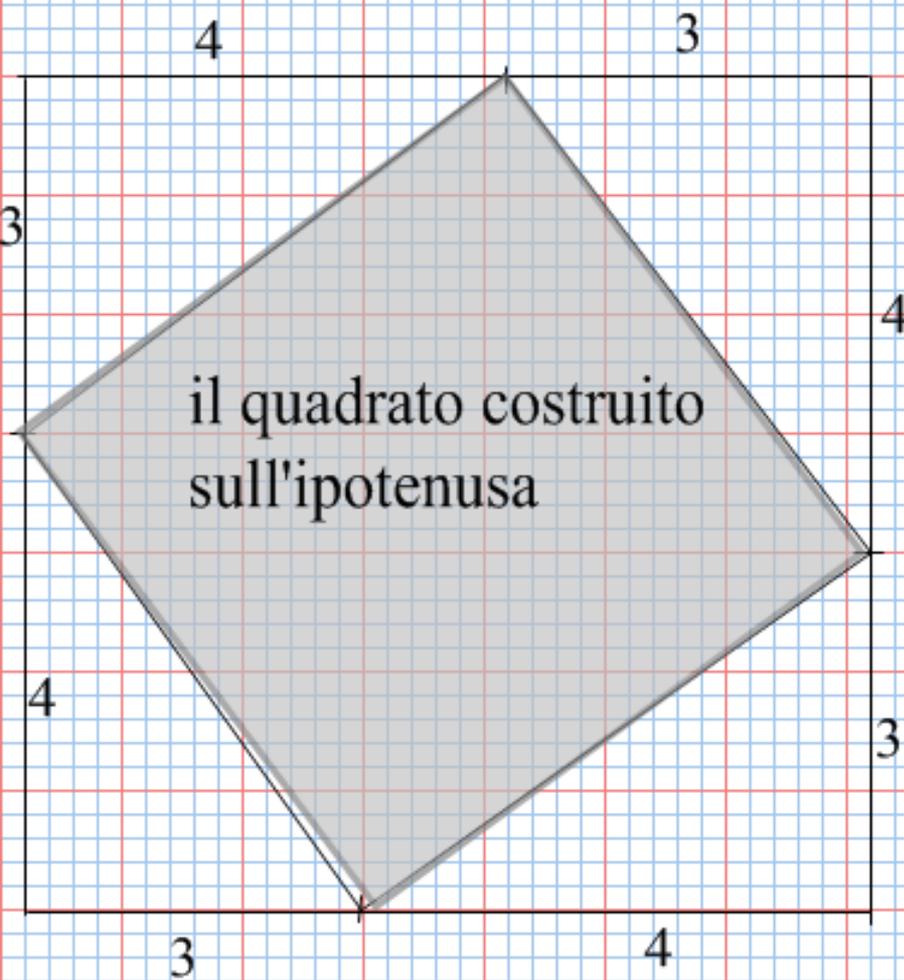
in grigio vedo, in entrambi i disegni, 4 triangoli rettangoli, disposti diversamente, ma uguali (i cateti sono sempre lunghi 3 e 4)

conclusioni

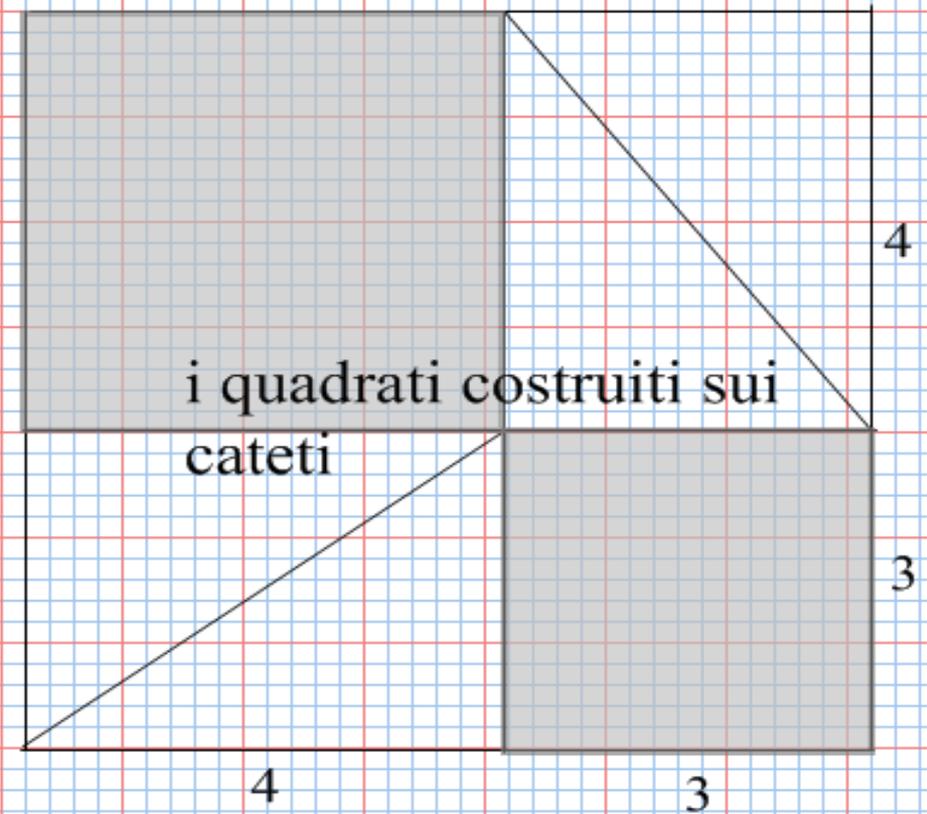
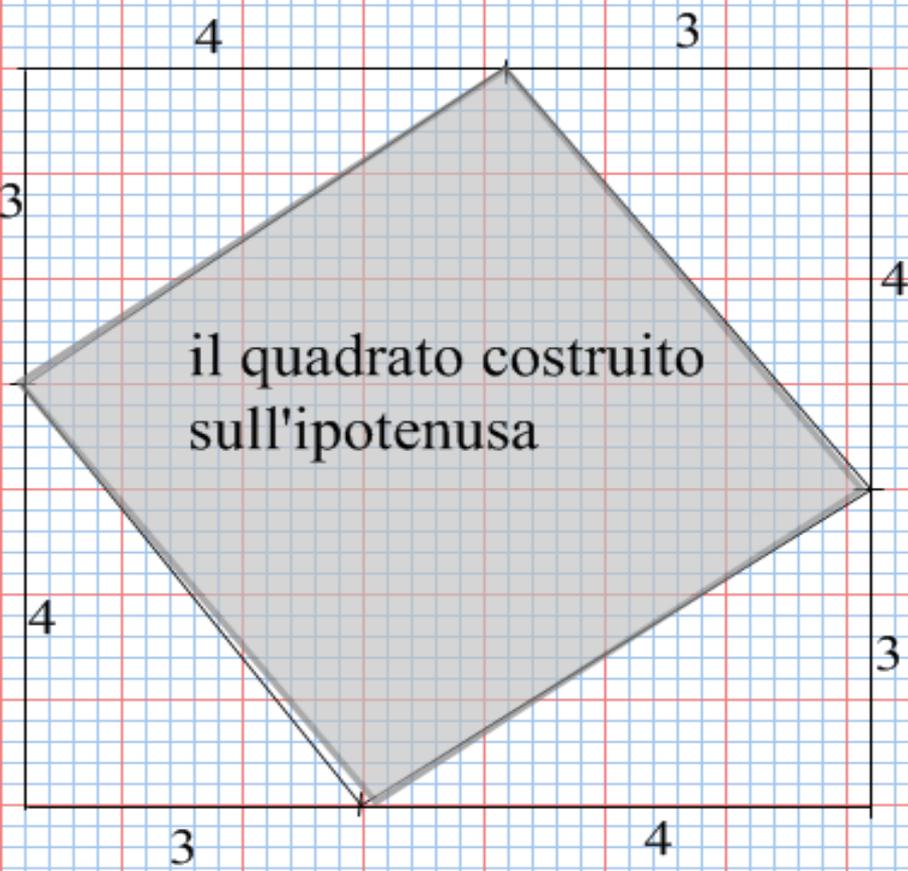


se non considero i 4 triangoli rettangoli  
quello che rimane è





e, come ha osservato Pitagora,  
anche questi elementi devono essere uguali tra loro:



infatti

si parte con figure uguali

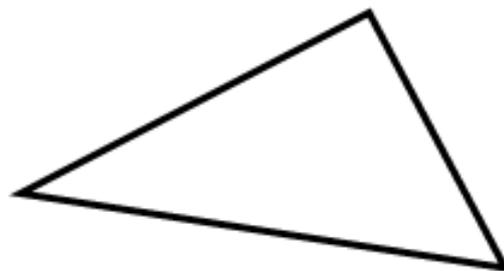
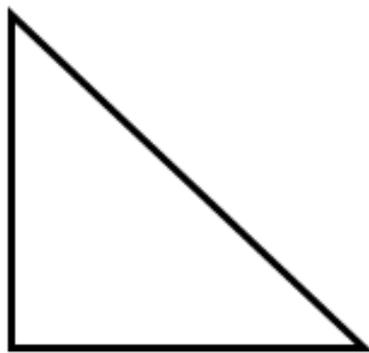
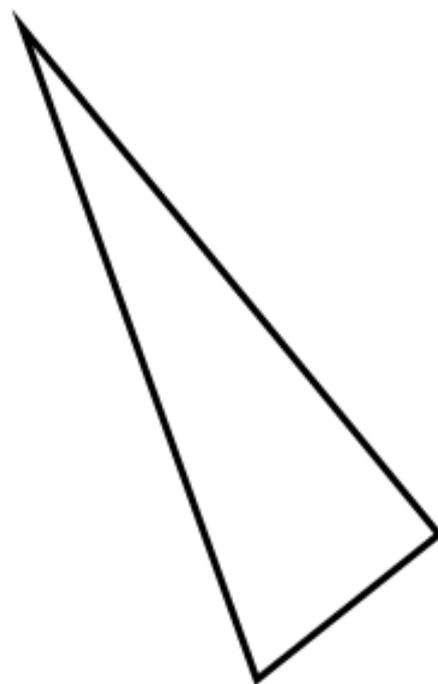
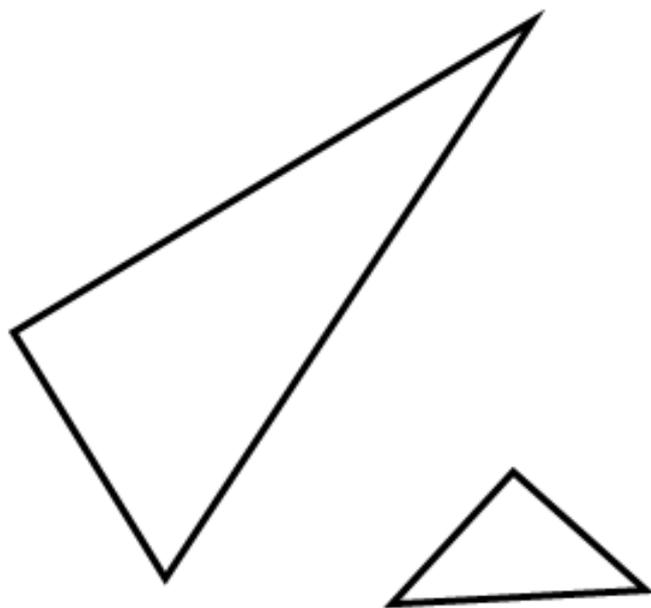
feb 24-13.30

si sottraggono da entrambe 4 triangoli uguali

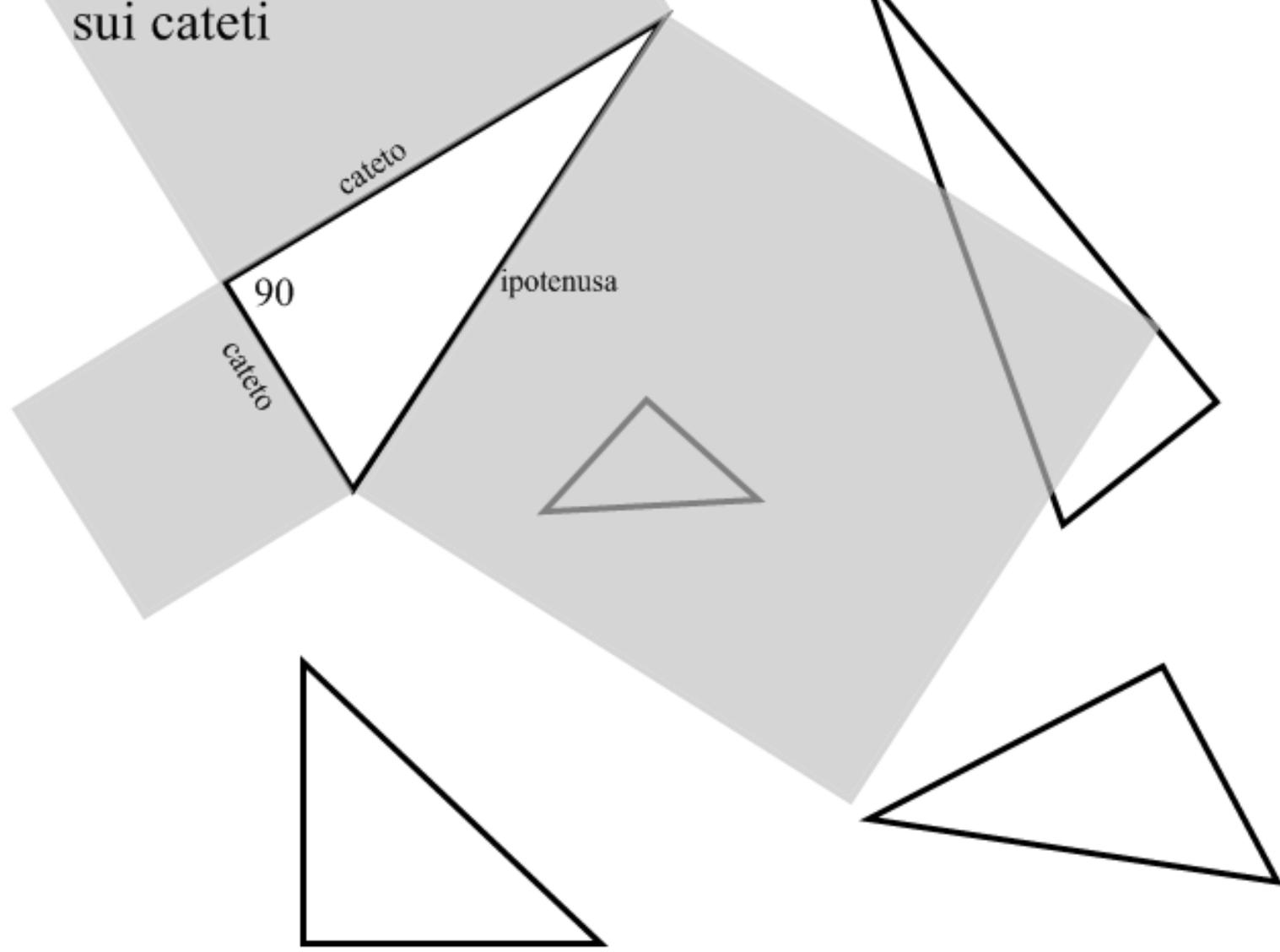
feb 24-13.30

quel che resta deve avere uguale estensione

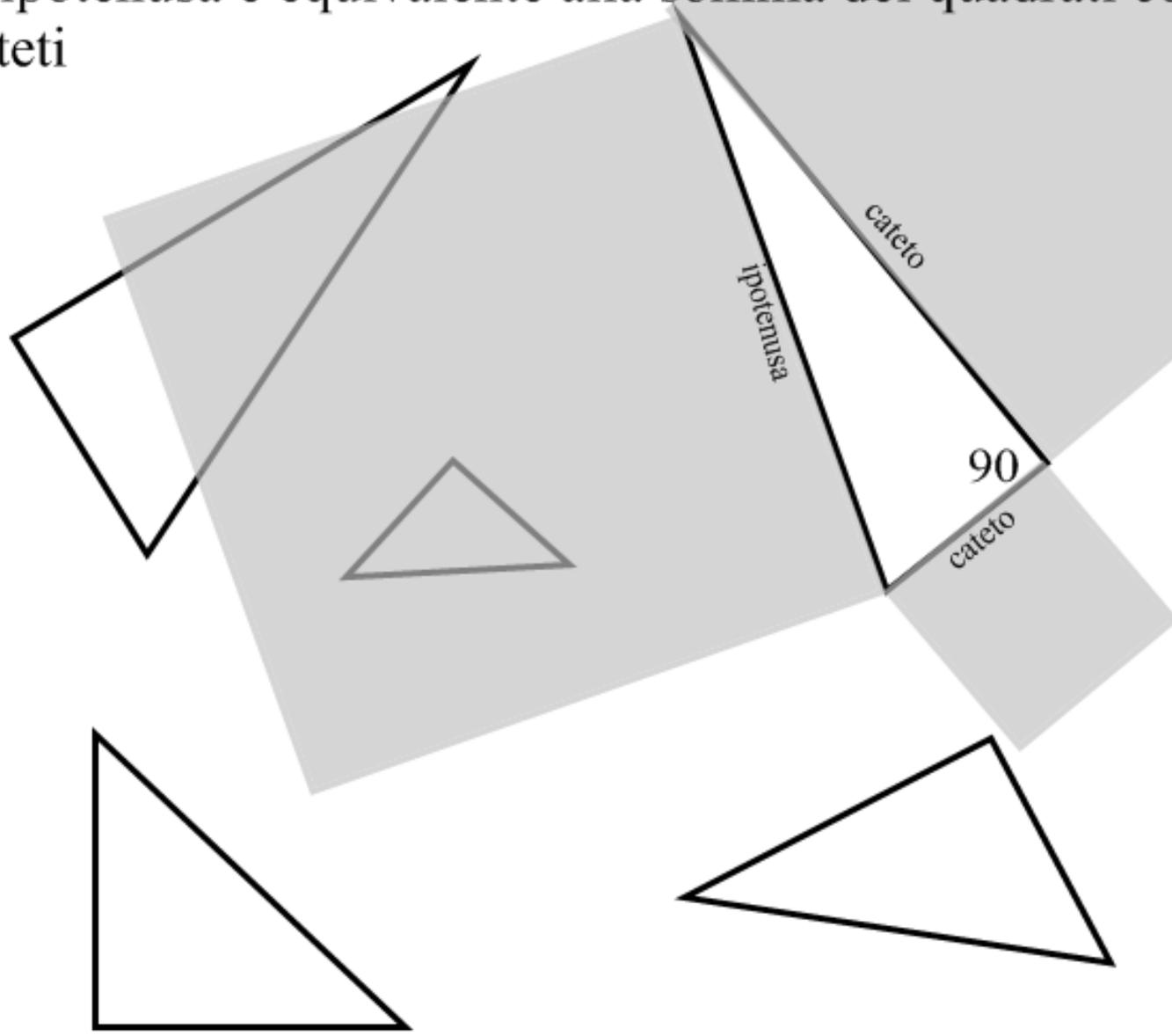
in conclusione



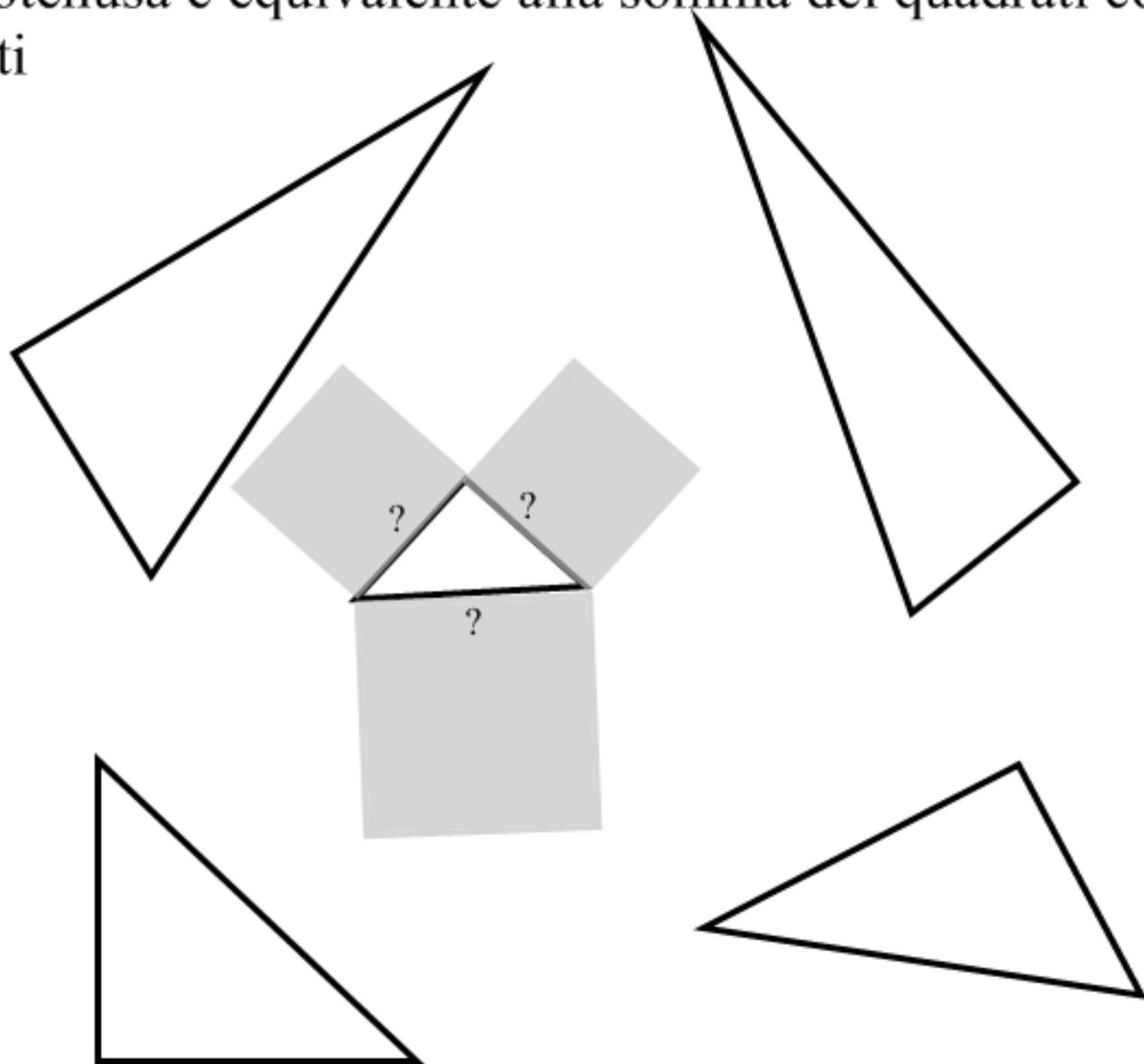
In qualsiasi **triangolo rettangolo**, il quadrato costruito sulla ipotenusa è equivalente alla somma dei quadrati costruiti sui cateti



In qualsiasi **triangolo rettangolo**, il quadrato costruito sulla ipotenusa è equivalente alla somma dei quadrati costruiti sui cateti

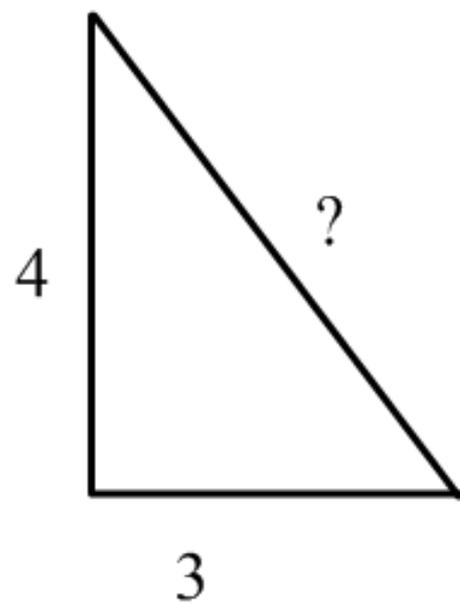


In qualsiasi **triangolo rettangolo**, il quadrato costruito sull' ipotenusa è equivalente alla somma dei quadrati costruiti sui cateti

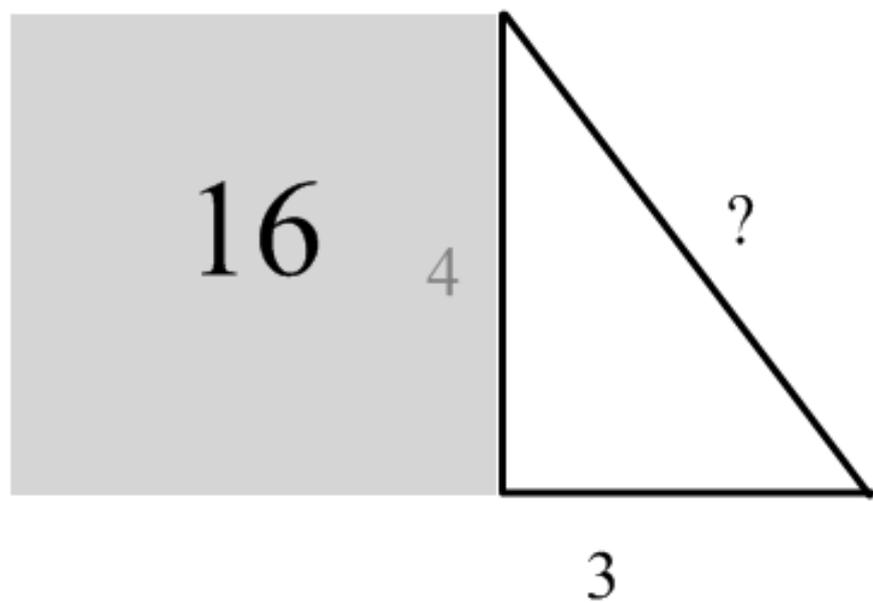


In qualsiasi **triangolo rettangolo**,  
il quadrato costruito sulla ipotenusa  
è equivalente  
alla somma dei quadrati costruiti sui cateti

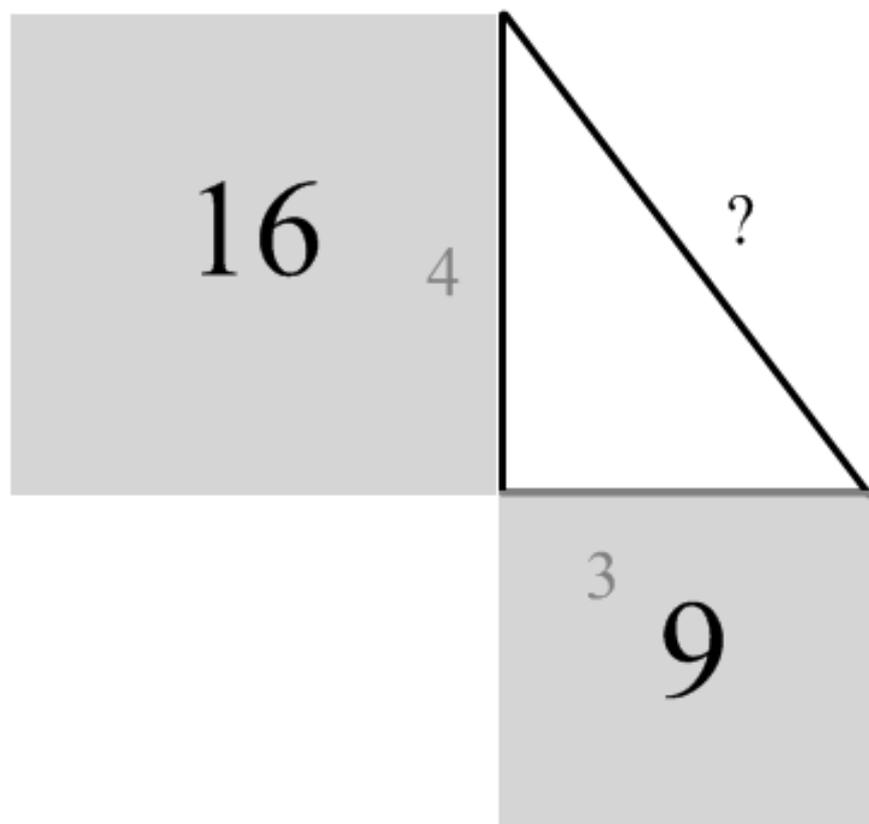
se adesso ragiono con le misure



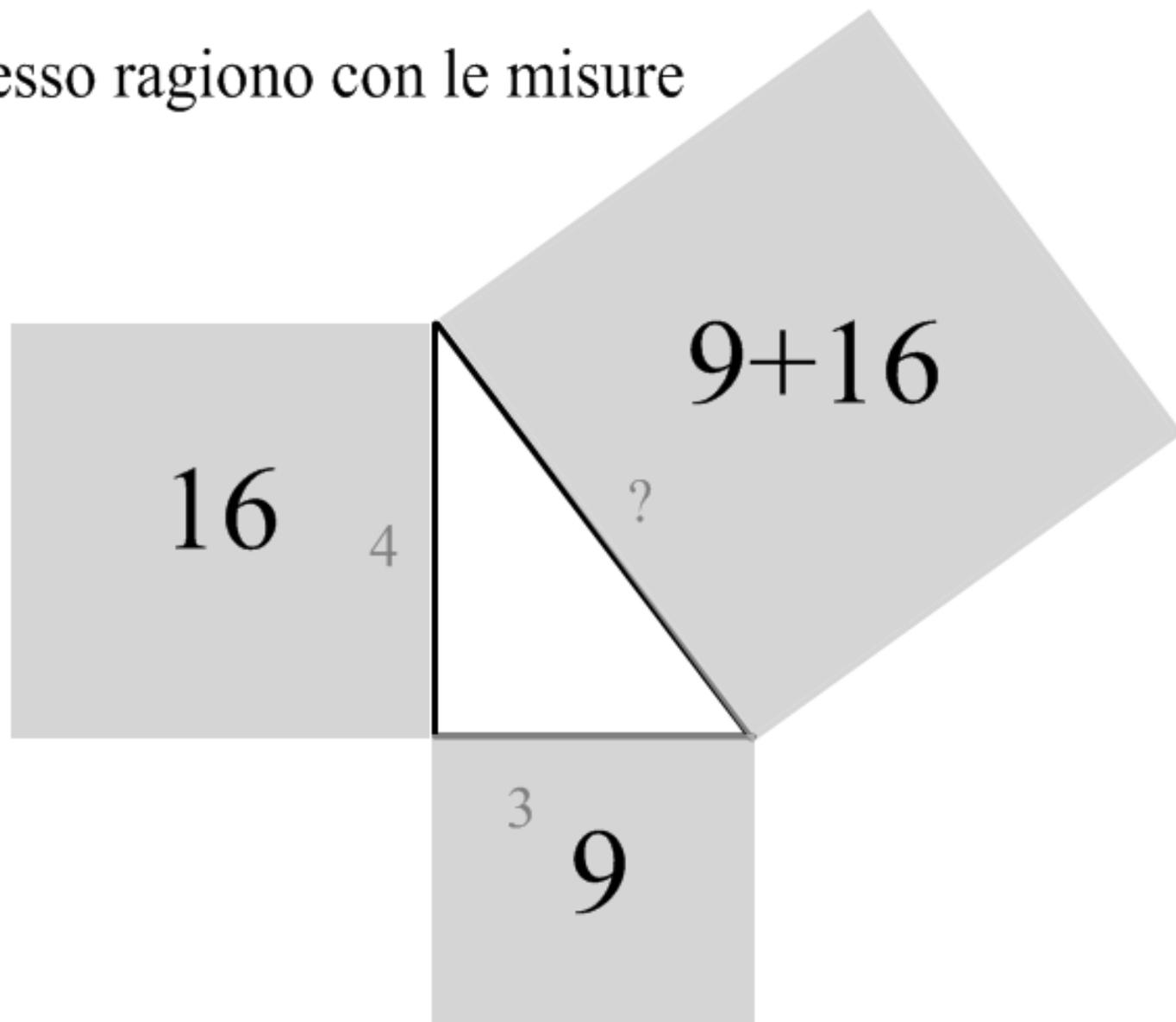
se adesso ragiono con le misure



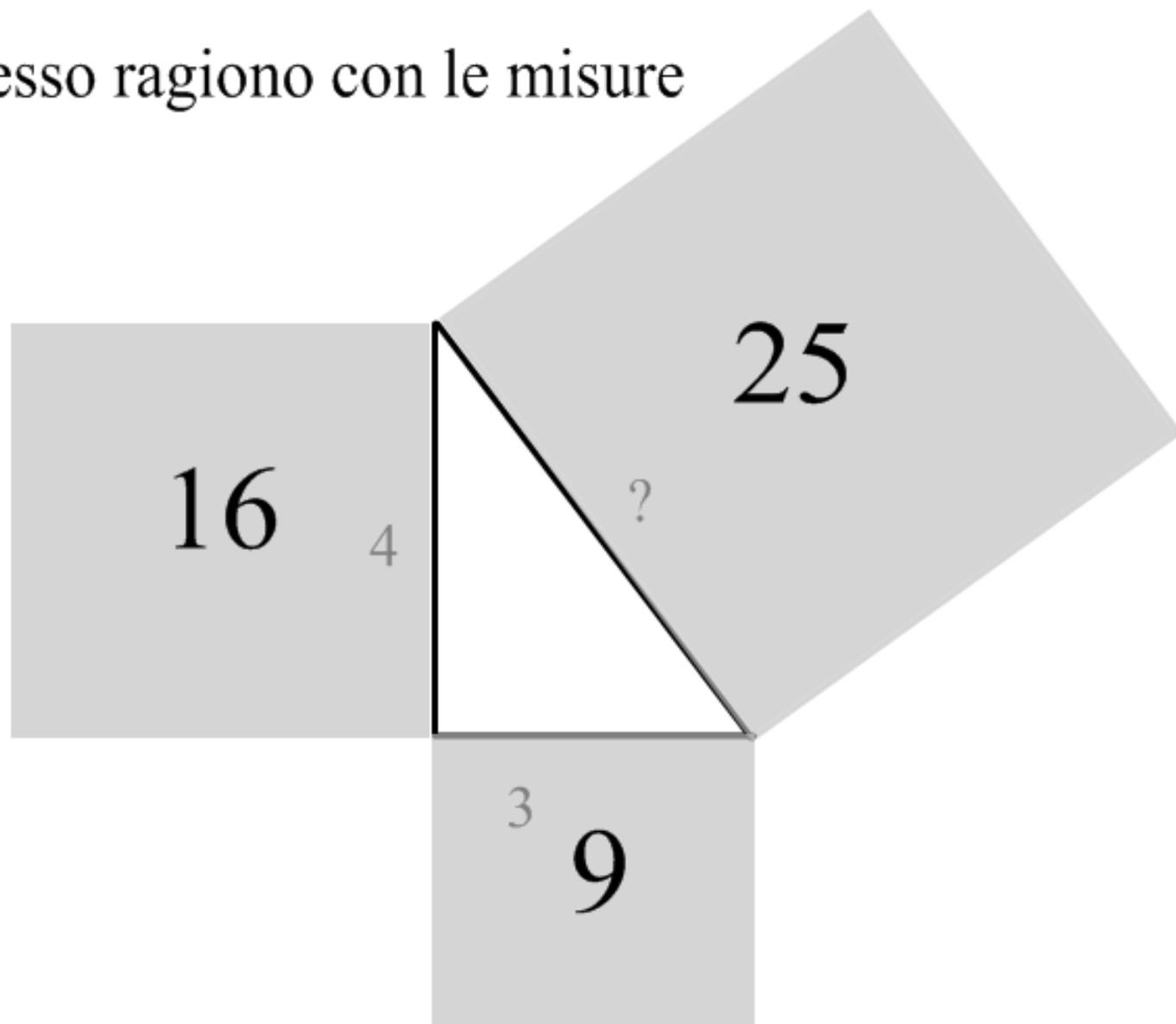
se adesso ragiono con le misure



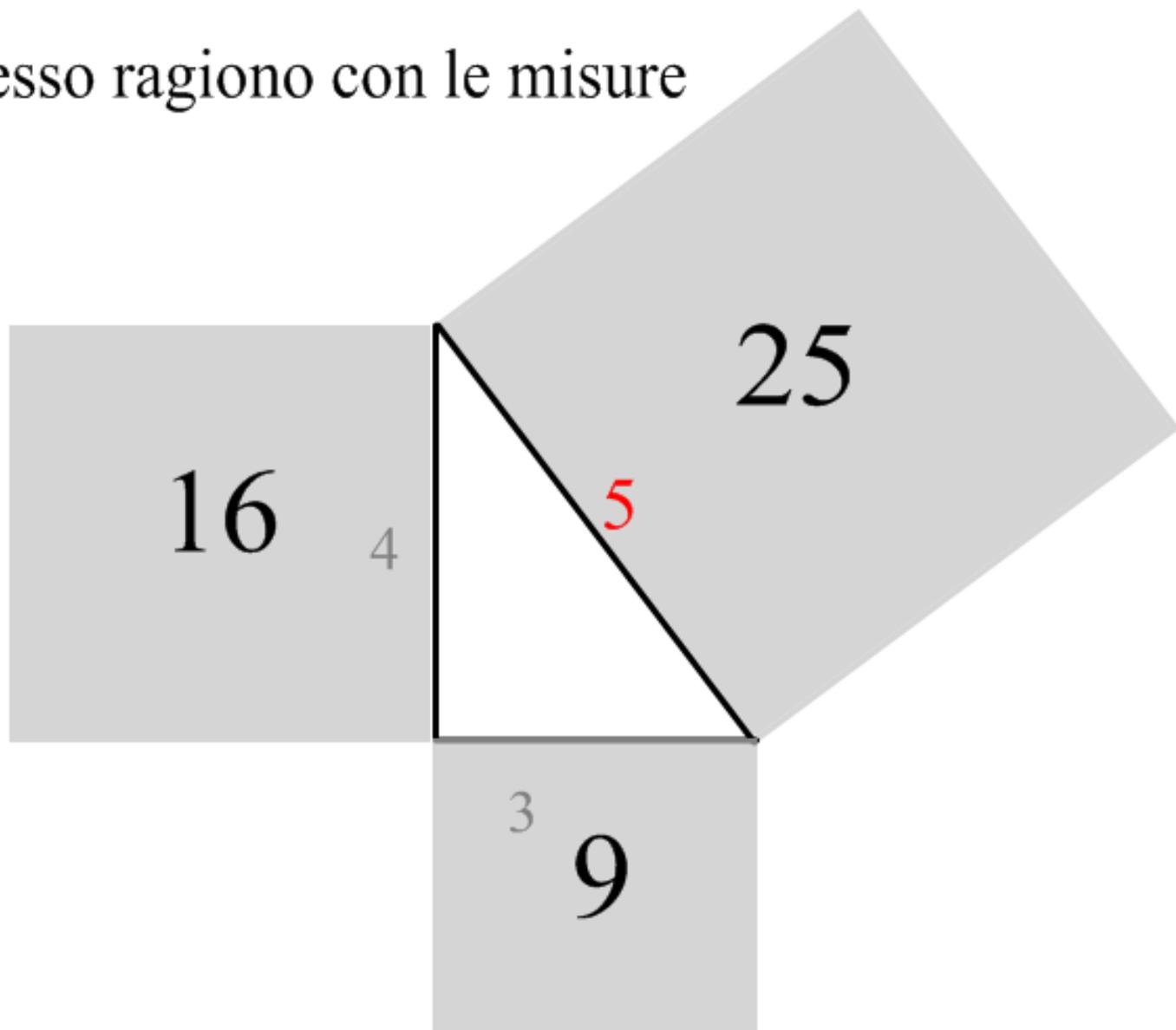
se adesso ragiono con le misure



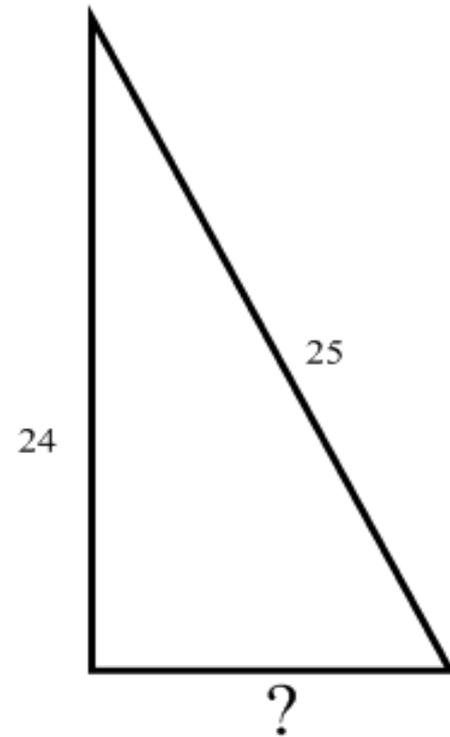
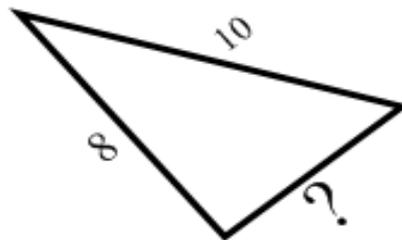
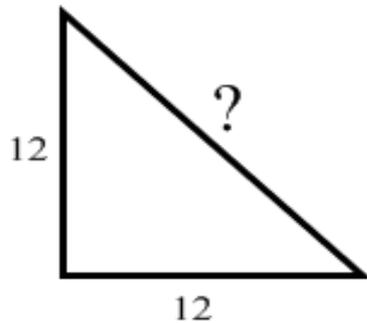
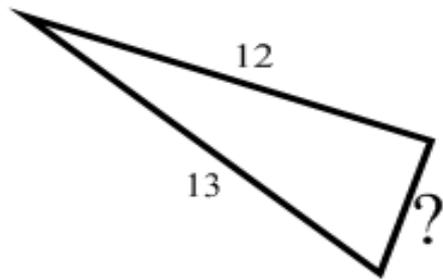
se adesso ragiono con le misure

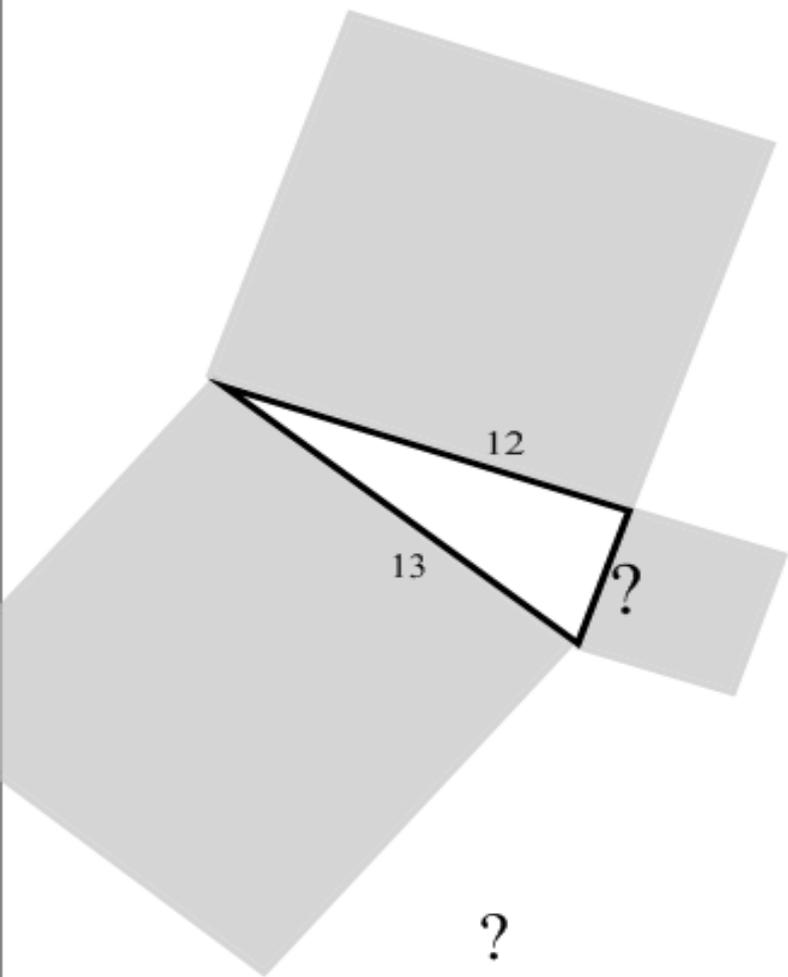


se adesso ragiono con le misure

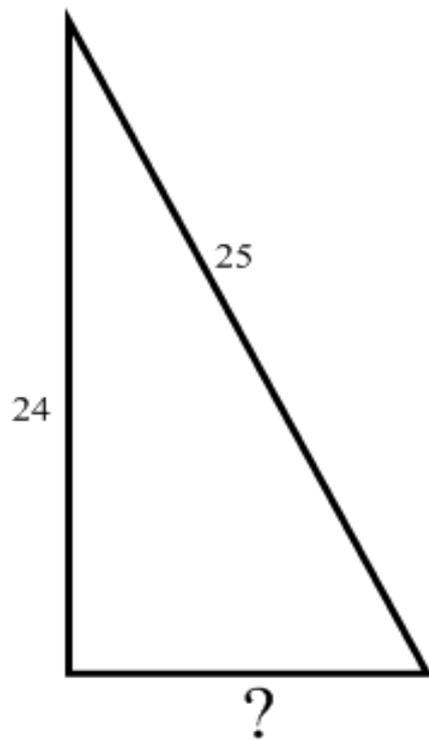
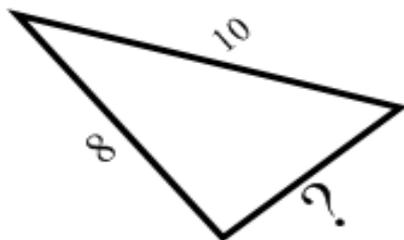


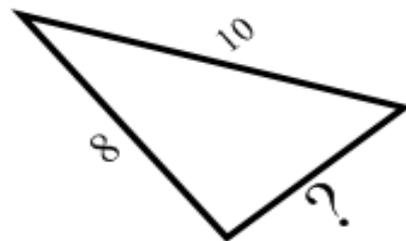
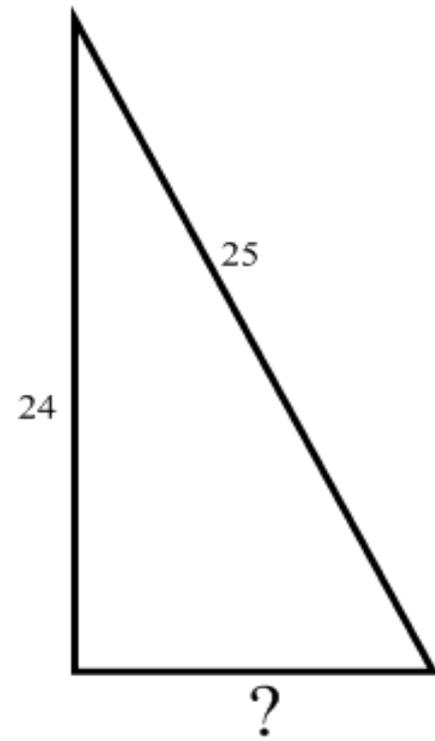
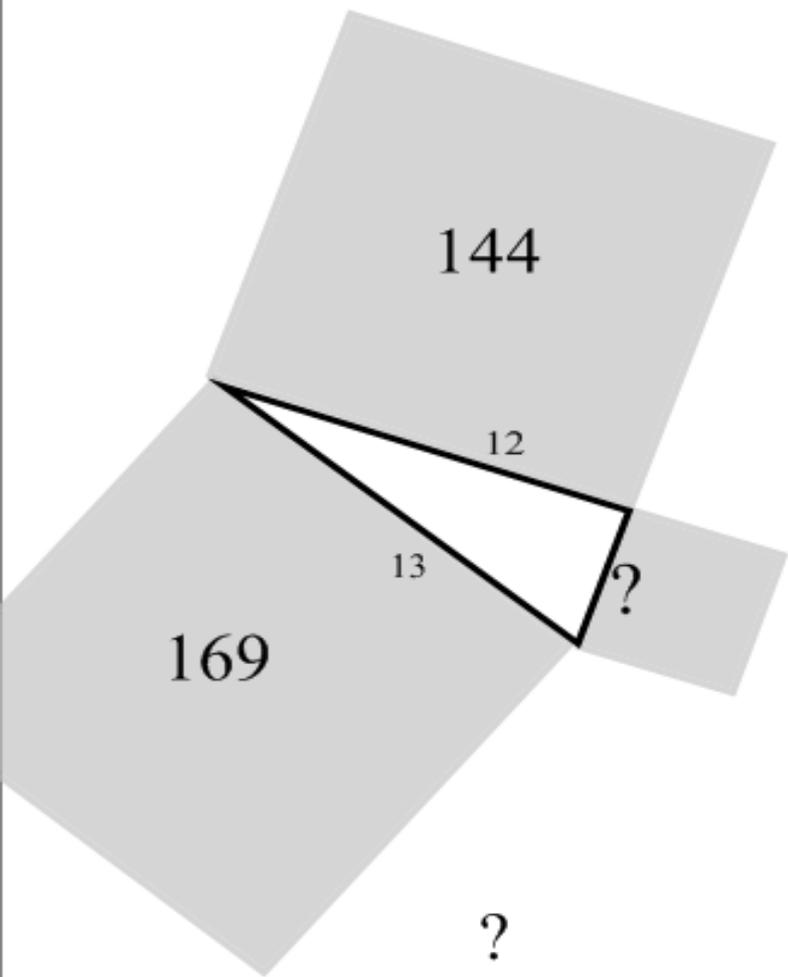
utilizzando il teorema di Pitagora  
se conosco le misure  
di **due lati di un triangolo rettangolo**  
posso trovare la misura  
del **terzo lato**

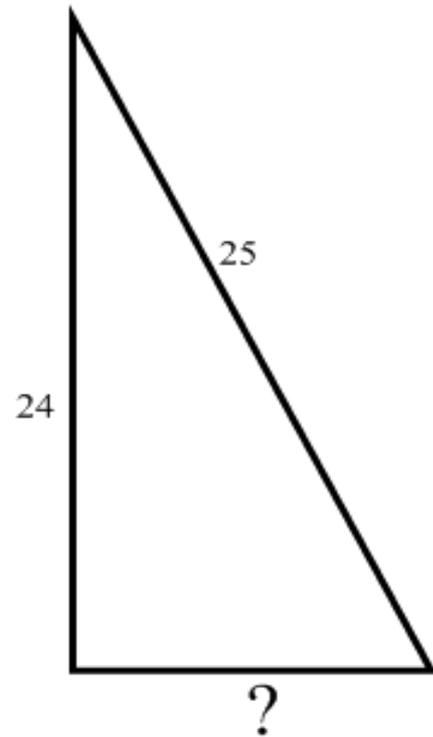
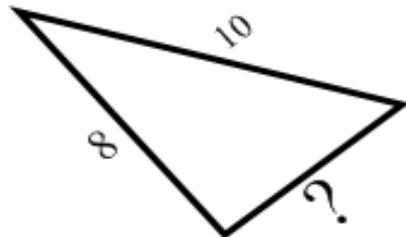
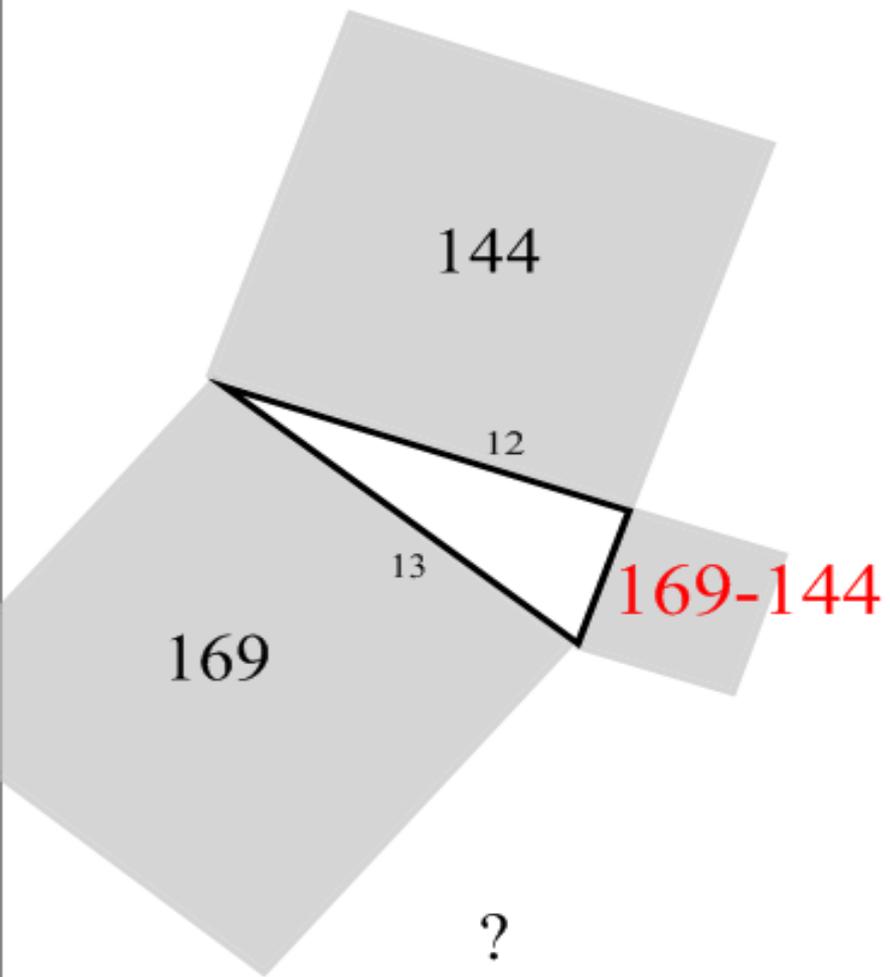


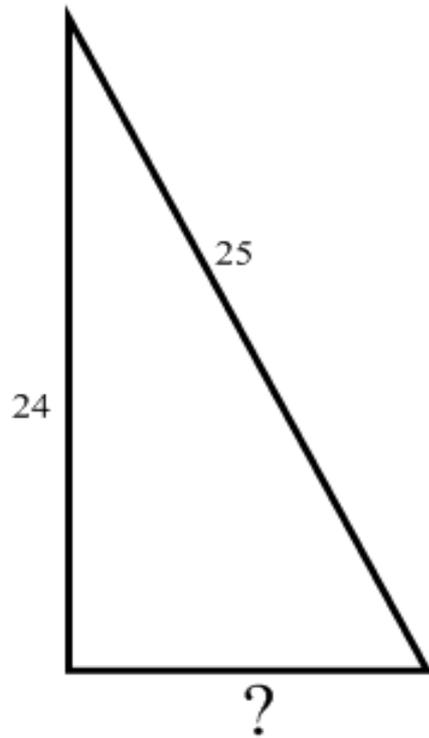
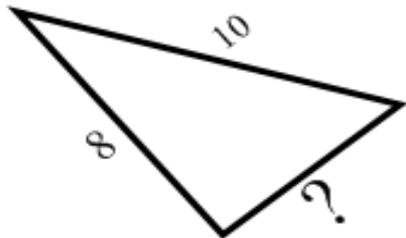
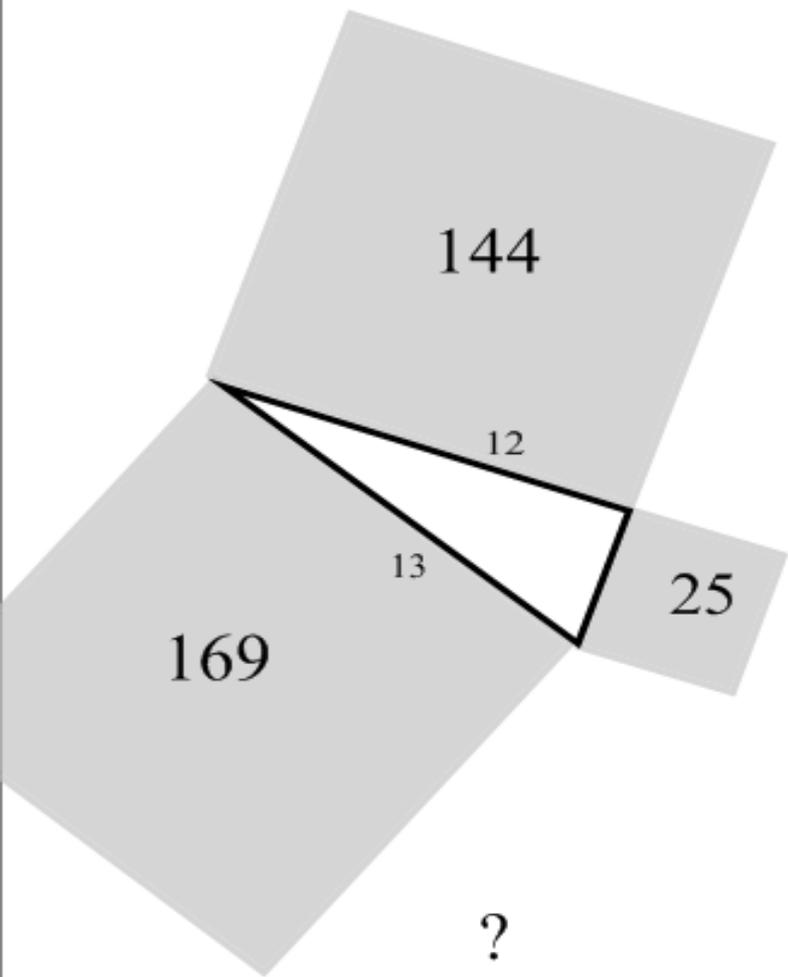


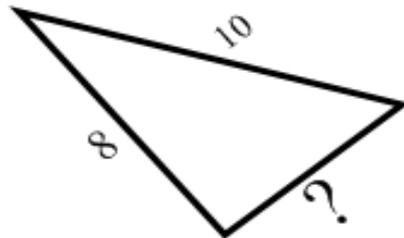
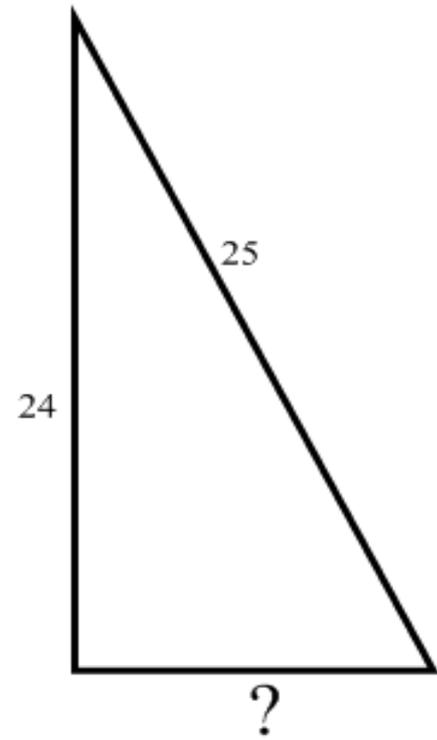
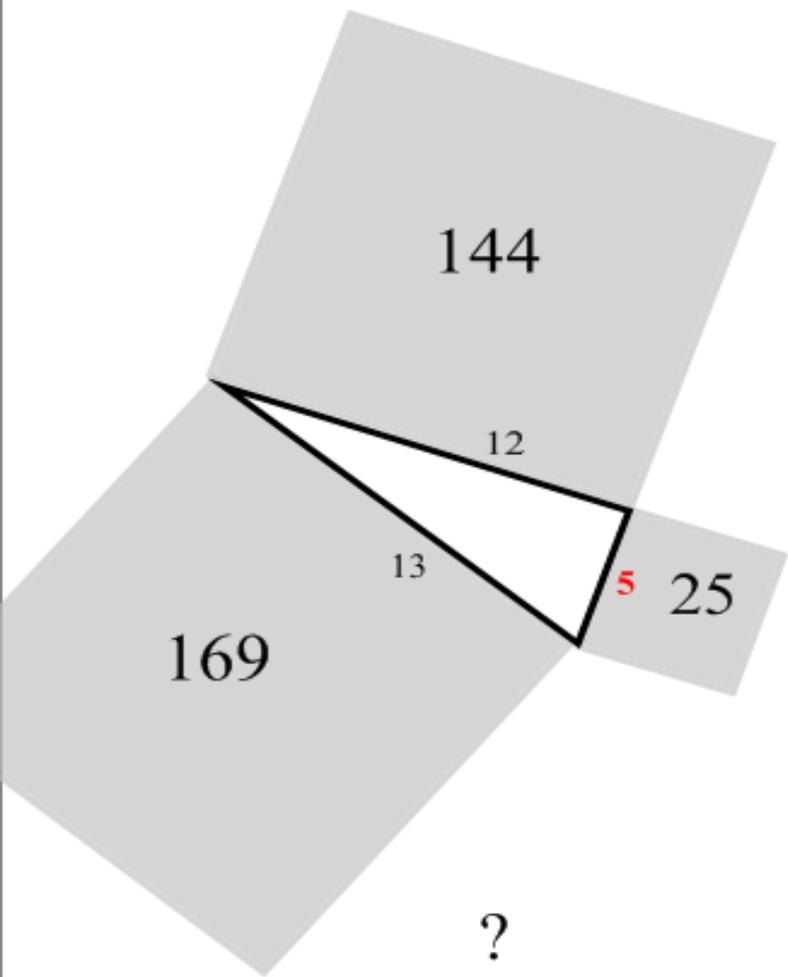
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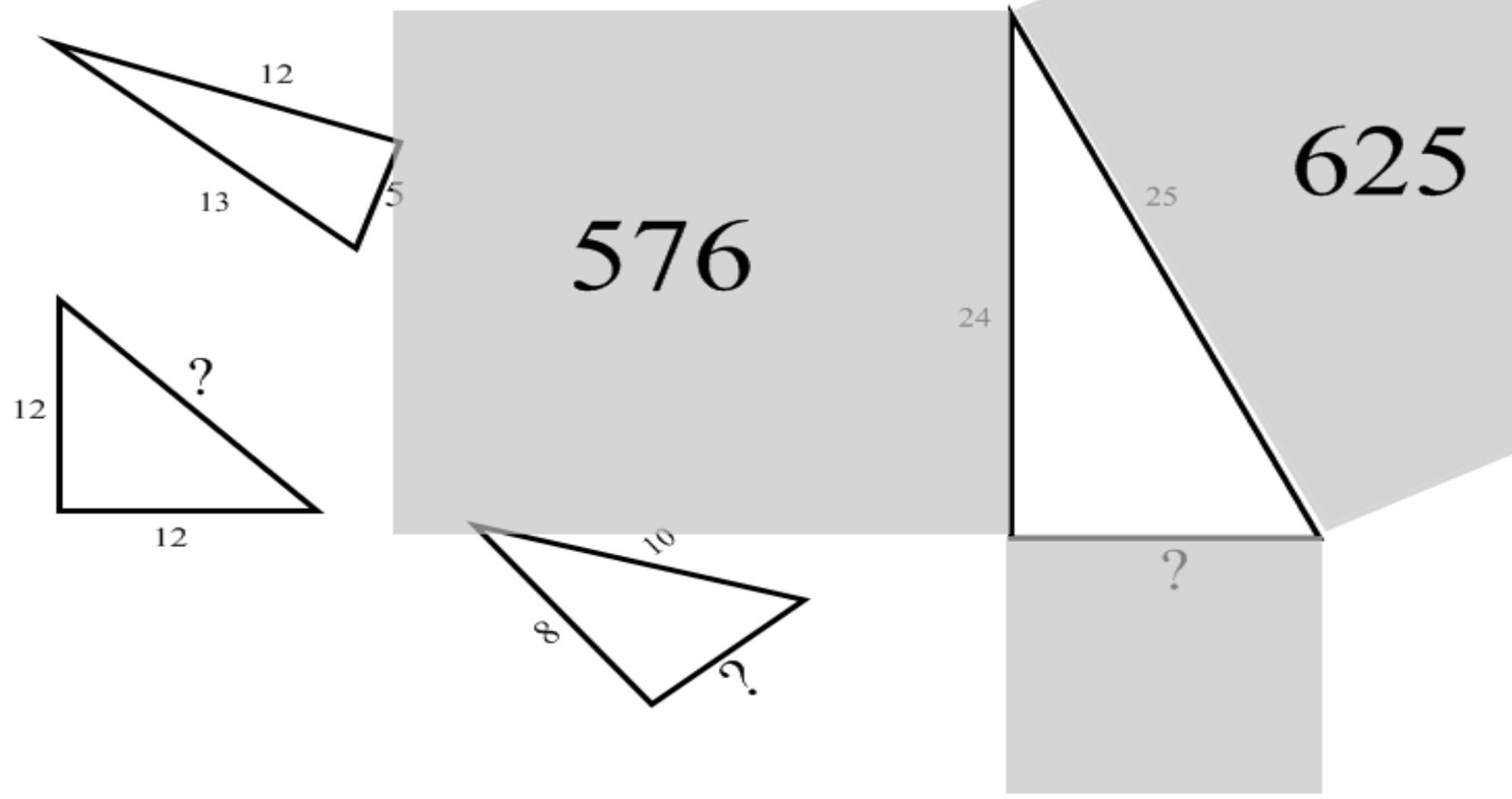


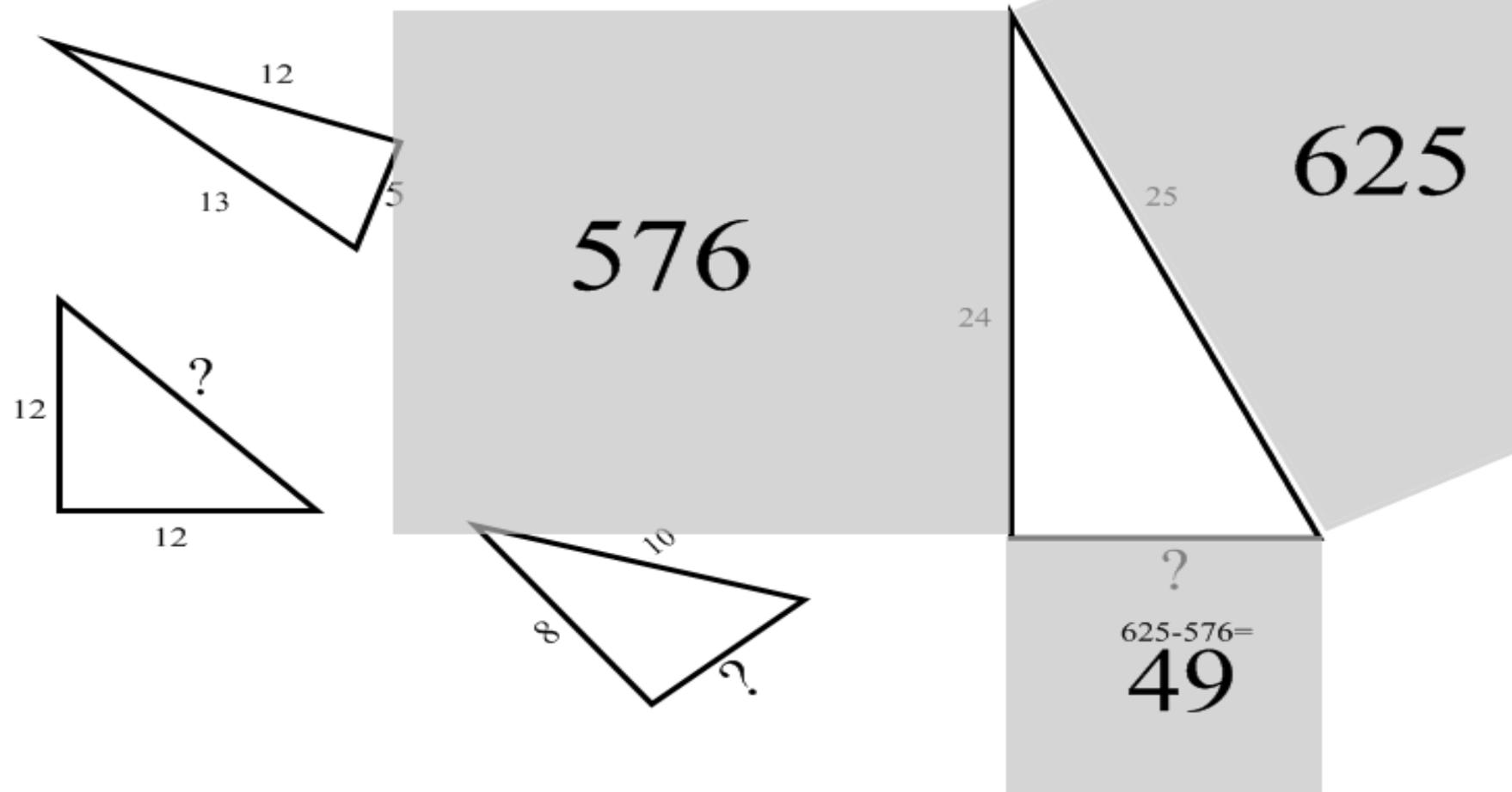








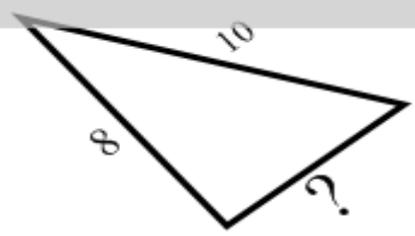
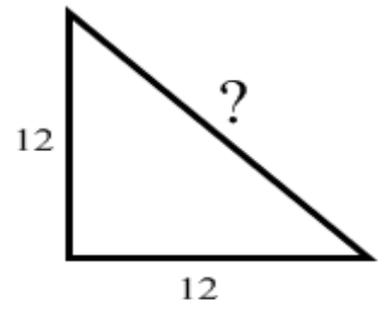
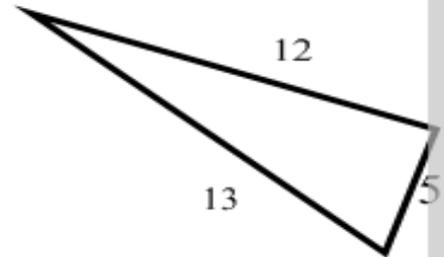


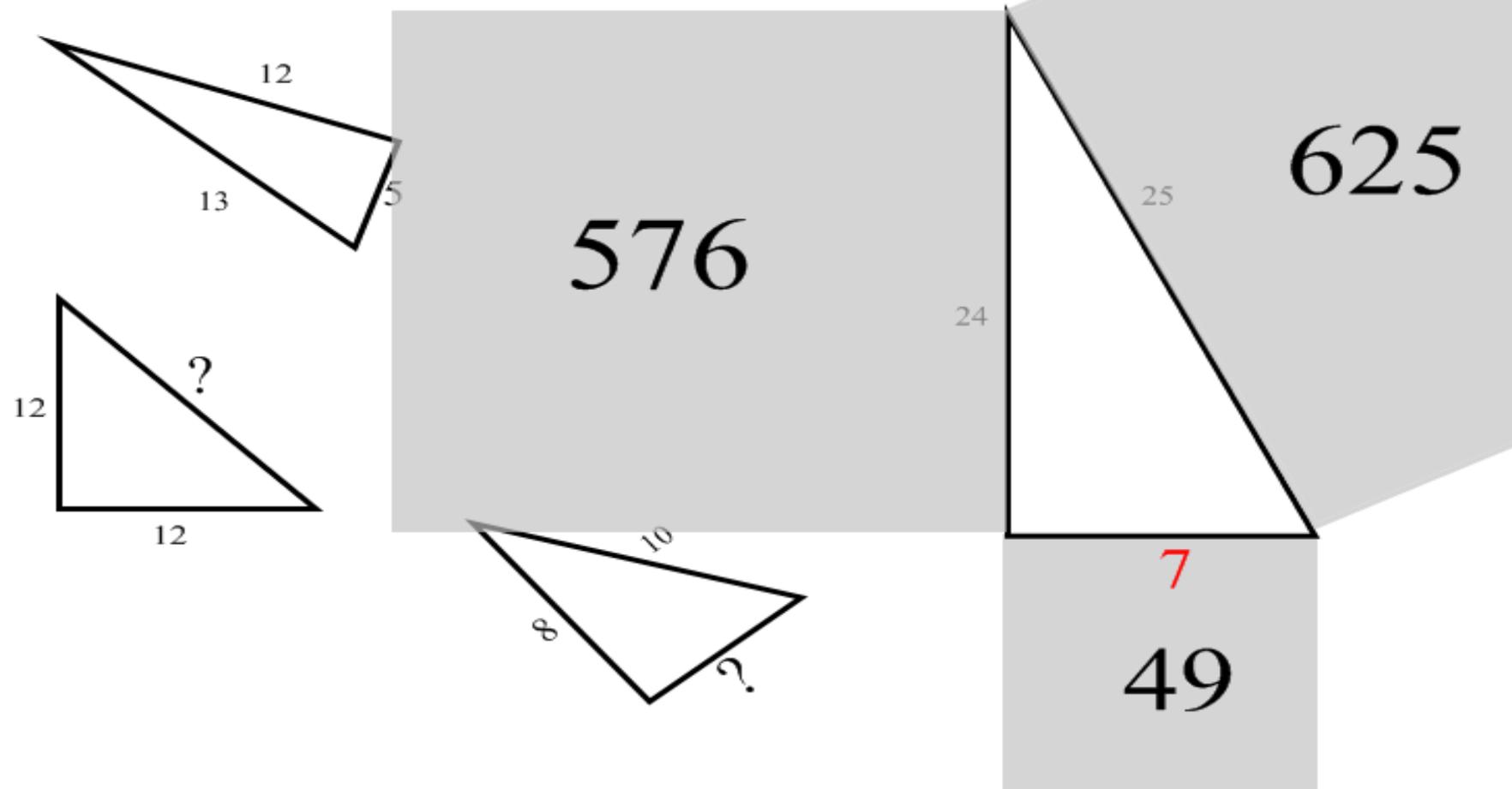


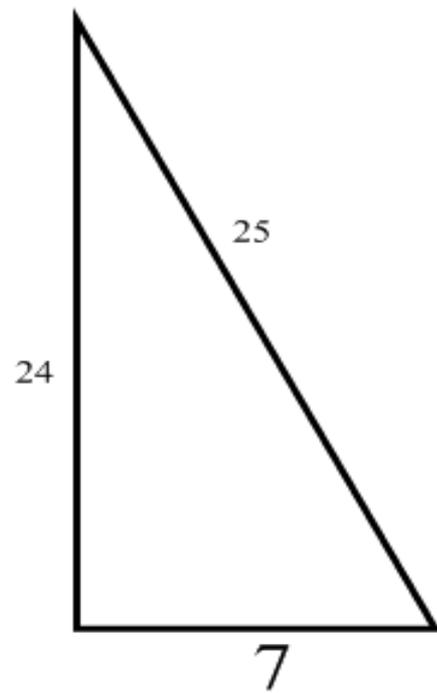
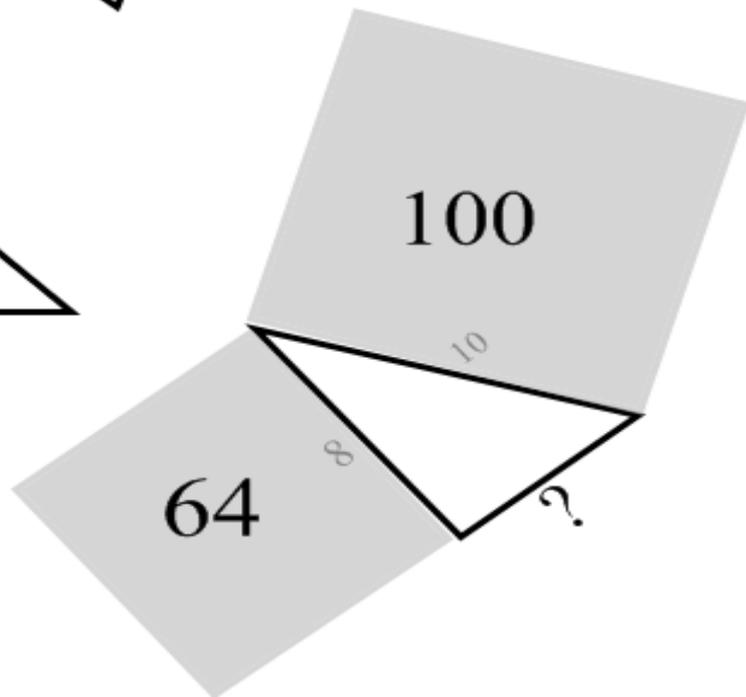
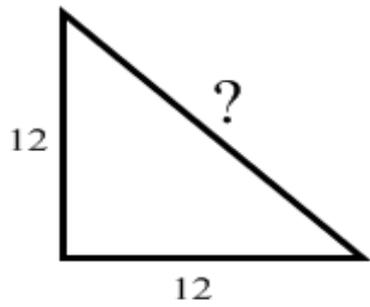
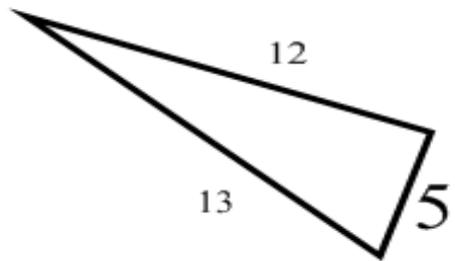
576

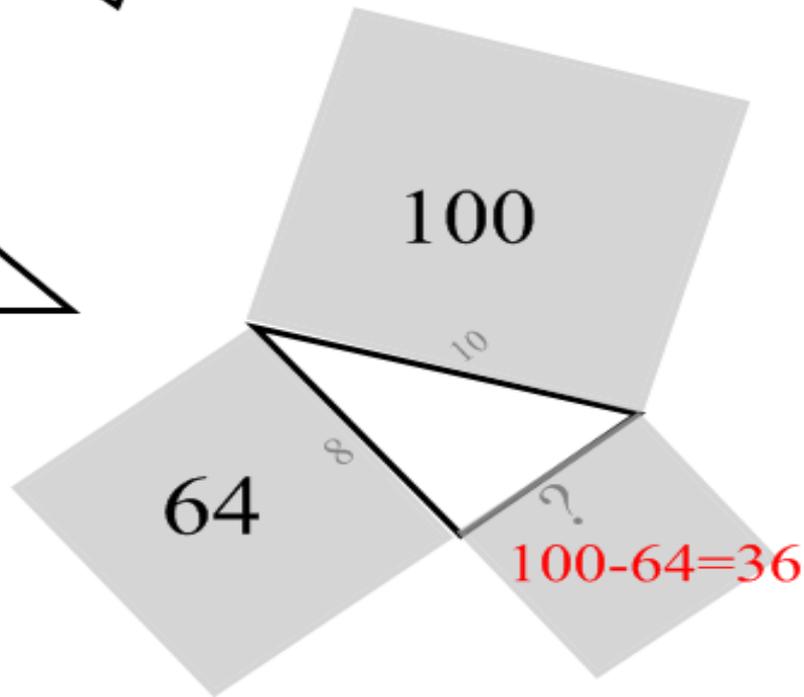
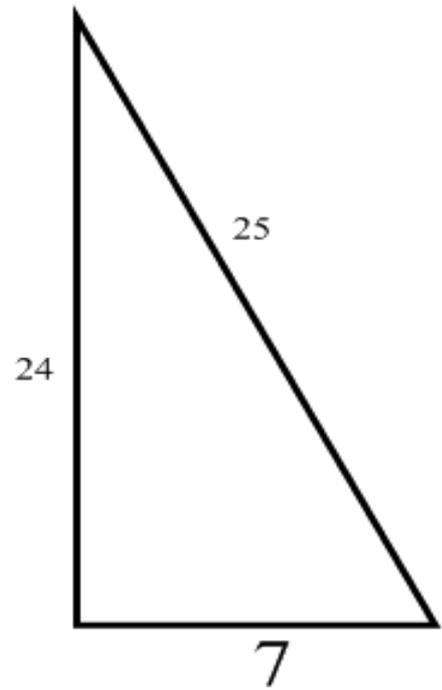
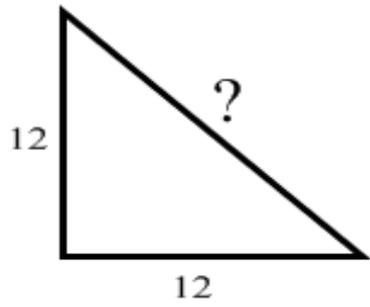
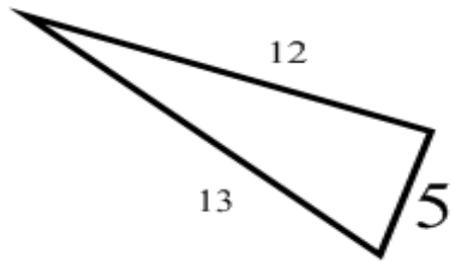
625

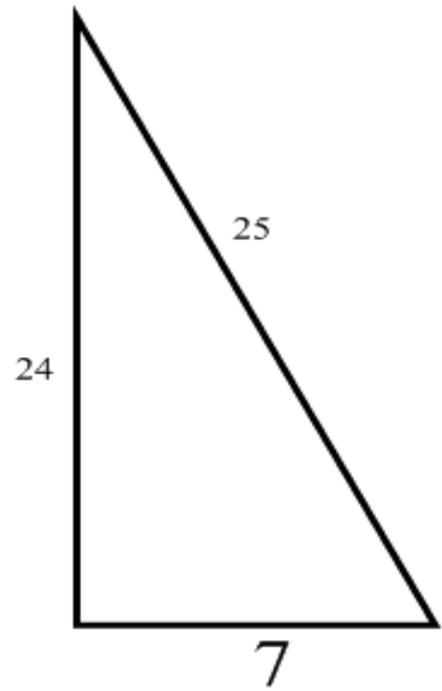
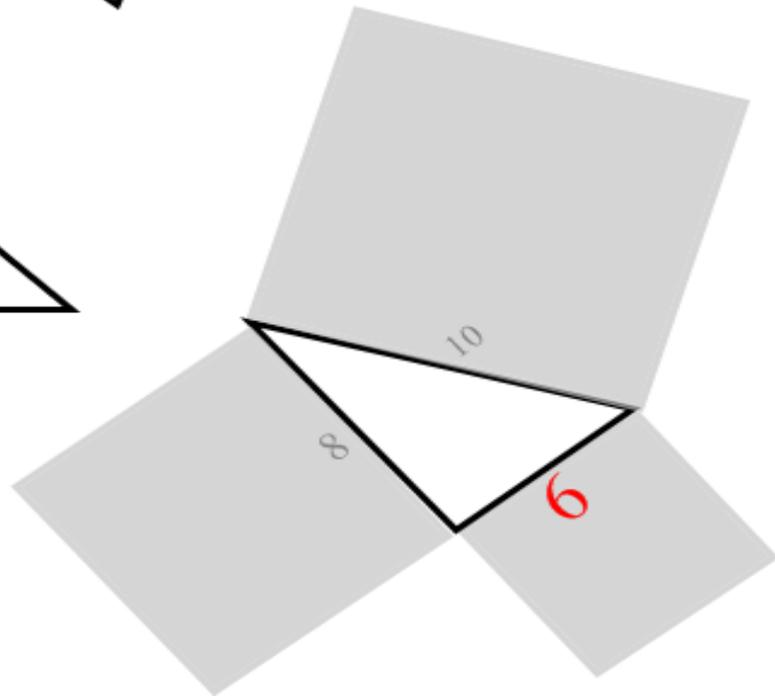
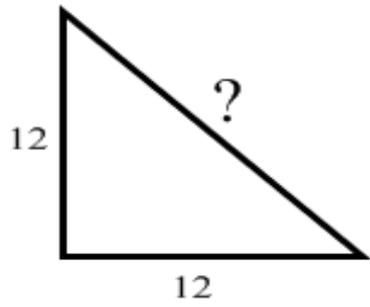
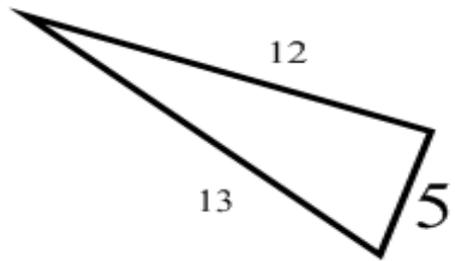
?  
 $625 - 576 =$   
49

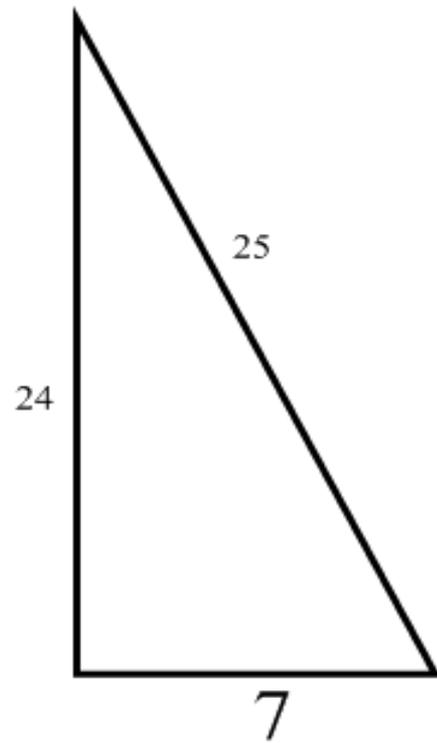
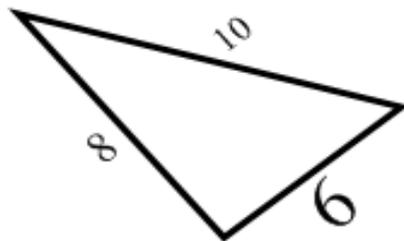
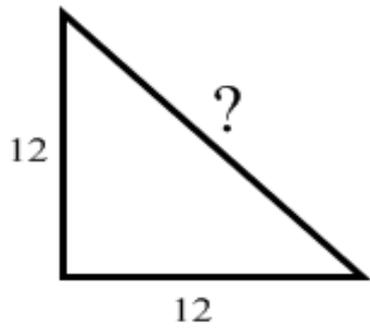
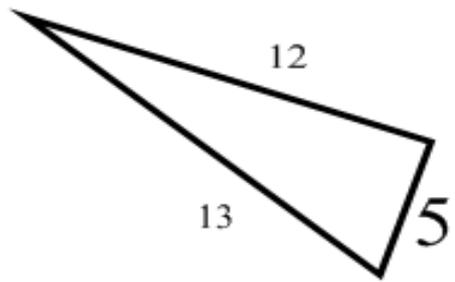












cateto1	cateto 2	ipotenusa
3	4	5
...	12	13
8	...	10
...	24	25
12	12	....

cateto1	cateto 2	ipotenusa
3	4	5
5	12	13
6	8	10
7	24	25
12	12	....
7	10	....

sai riconoscere i triangoli rettangoli?

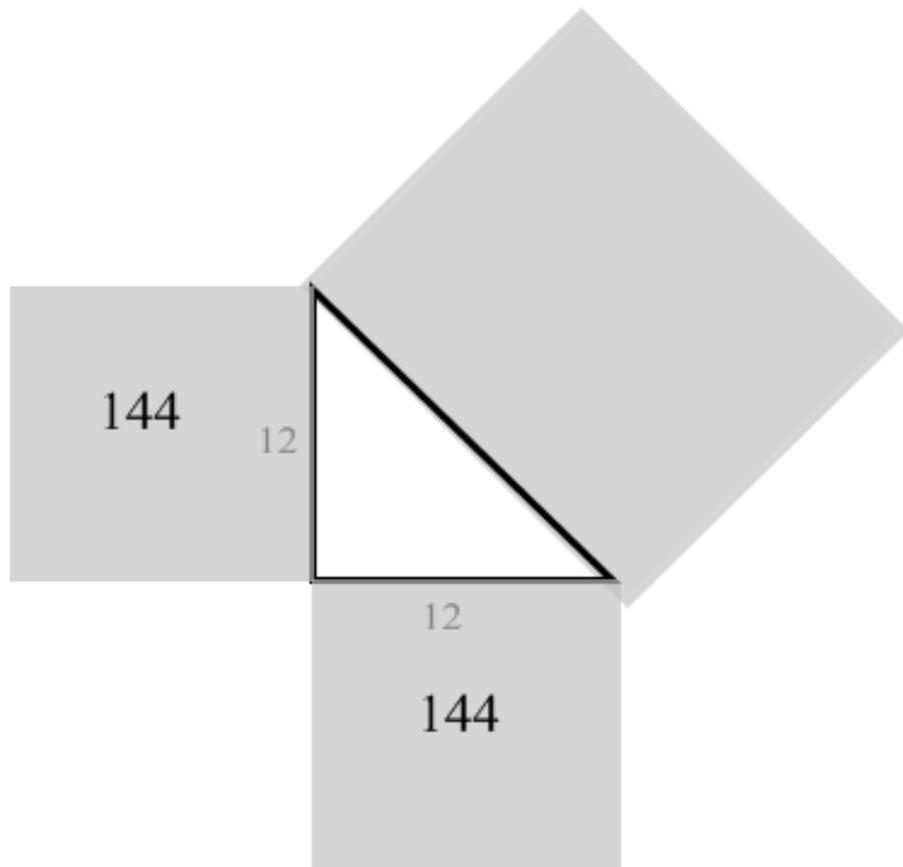
quali triangoli rettangoli posso individuare  
nei poligoni fin qui studiati?

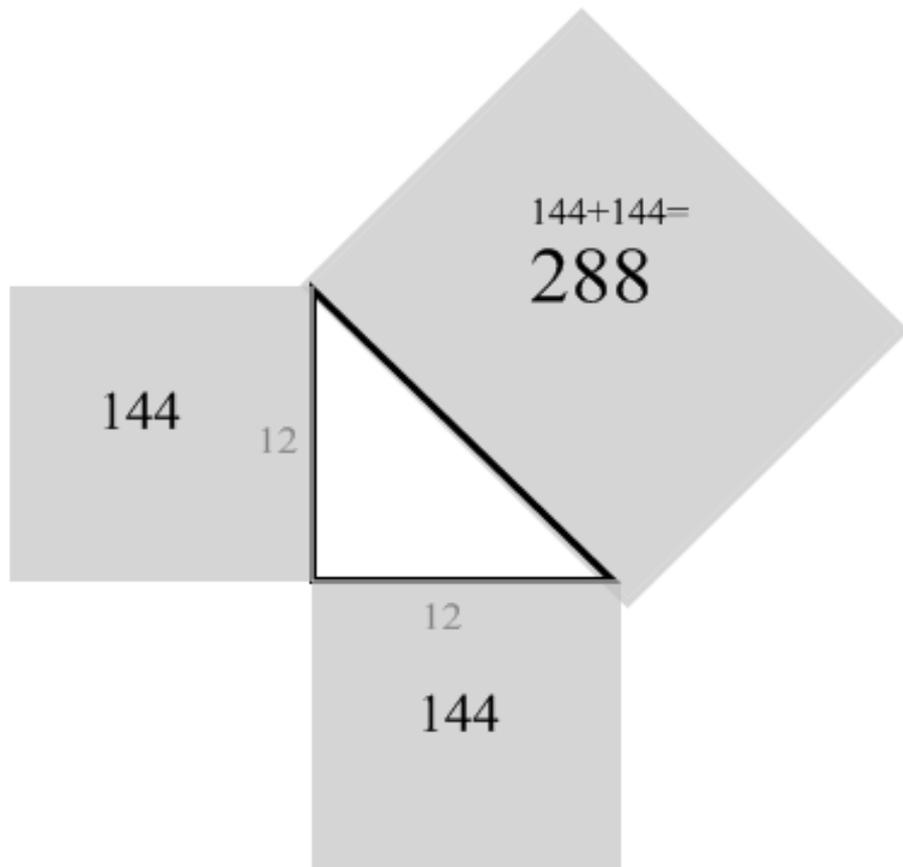
nei poligoni?

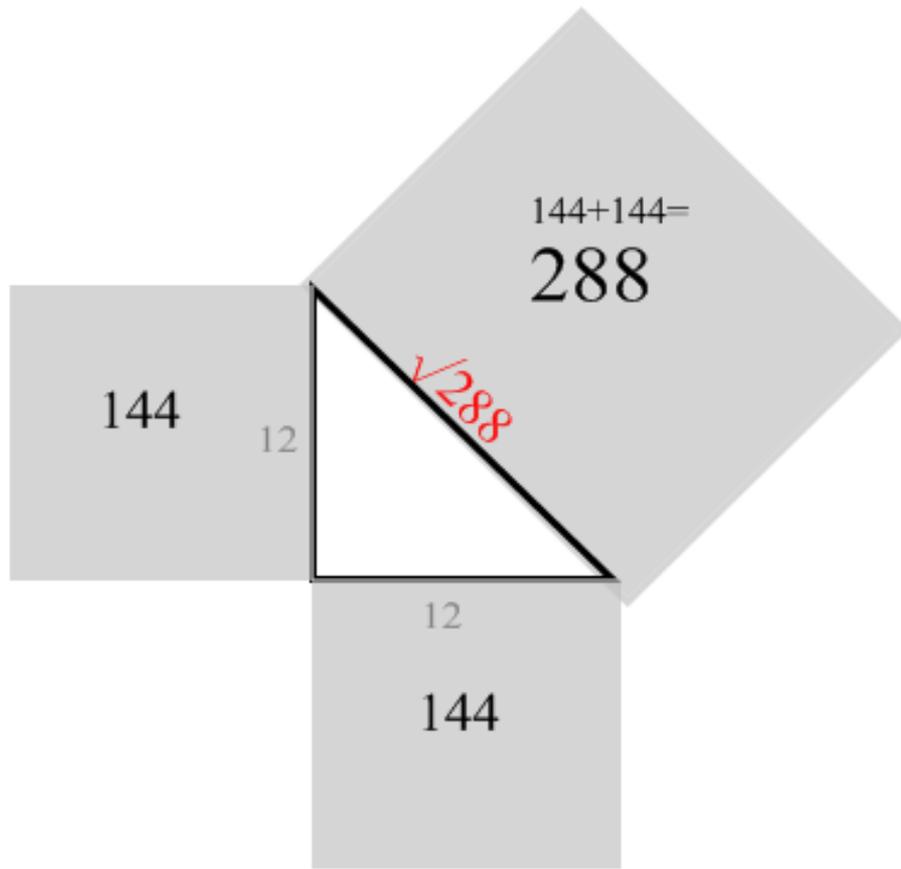
se parto con numeri interi  
ottengo sempre dei risultati "comodi"?  
sempre numeri interi per la misura  
del terzo lato?

no, è molto facile, trovare  
come risultati [numeri irrazionali](#)

*fine*







$$\sqrt{288} = 16,970562\dots$$

.

cateto 1	cateto 2	ipotenusa
3	4	5
5	12	13
6	8	10
7	24	25
12	12	$\sqrt{288}$
7	10	$\sqrt{149}$

$\sqrt{288}$  e  $\sqrt{149}$

sono numeri irrazionali cioè  
 decimali, illimitati e non periodici;  
 meglio lasciarli indicati con il segno di radice  
 piuttosto che scrivere.....

$\sqrt{288}=16,970562748477140585620264690516....$

$\sqrt{149}=12,206555615733702951897855256623....$

fine