Screen

Front of room

Same table groups...

...moved to different table set

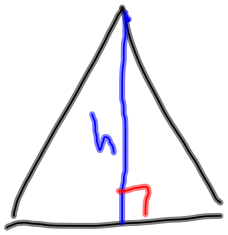
Sydney	Jaquelyn
Faith	Prinn

Karleigh	Caitlyn
Mckenzie	Matt

Christian	Zachary
Judy	Emma

Ben	Parker
Jonathan	Ryan

24



$A = \frac{1}{2}bh$

$108 = \frac{1}{2}bh$

$b : h \rightarrow 3 : 2$

$3b \rightarrow 2h$

$\frac{b}{h} = \frac{3}{2}$

18 → 3x → b

12 → 2x → h

$A = 108$

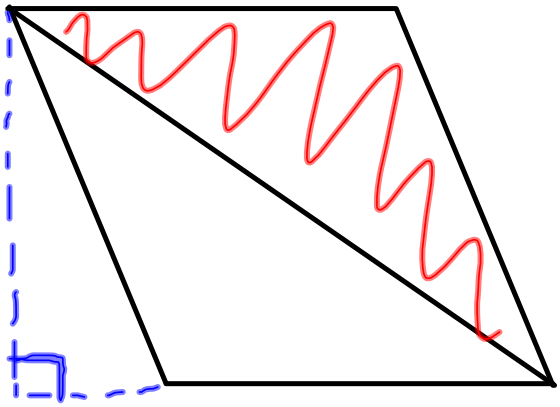
$108 = \frac{1}{2}(3x)(2x)$

$\frac{1}{2}(3x)(2x) = \frac{6x^2}{2} = 3x^2$

$3x^2 = 108$

$\sqrt{x^2} = \sqrt{36}$

$x = 6$



1/2 BH

3-1-1

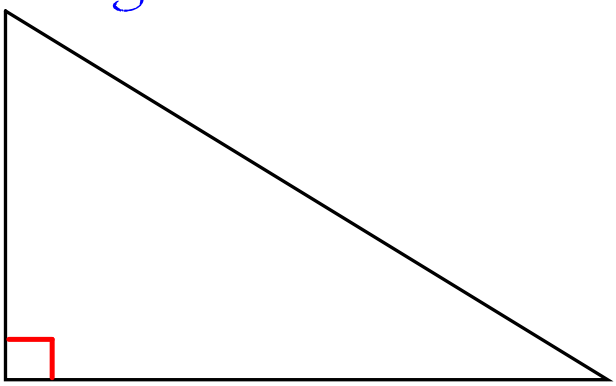
Pythagorean Theorem (Thm 7-4)

Pythagorean Theorem (Thm 7-4)

Right triangle...

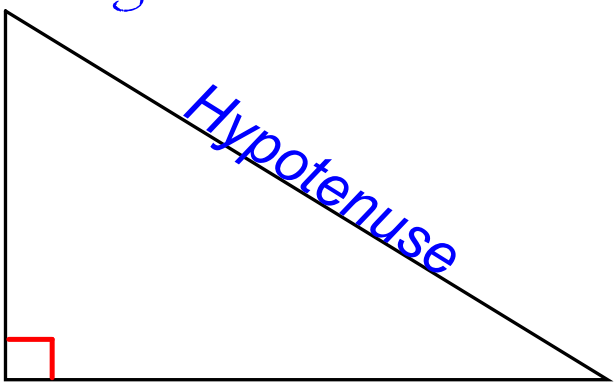
Pythagorean Theorem (Thm 7-4)

Right triangle...



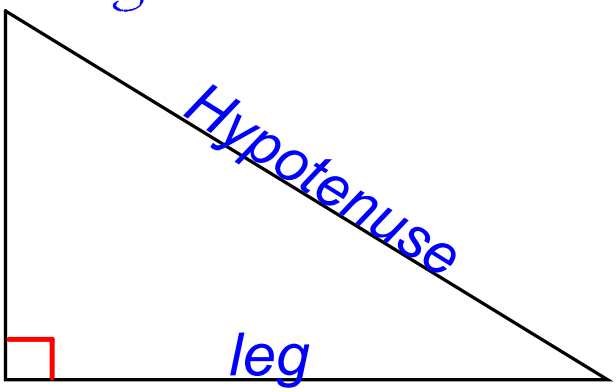
Pythagorean Theorem (Thm 7-4)

Right triangle...



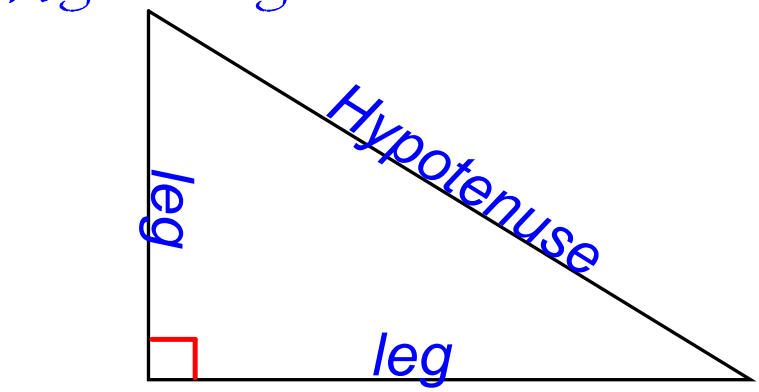
Pythagorean Theorem (Thm 7-4)

Right triangle...



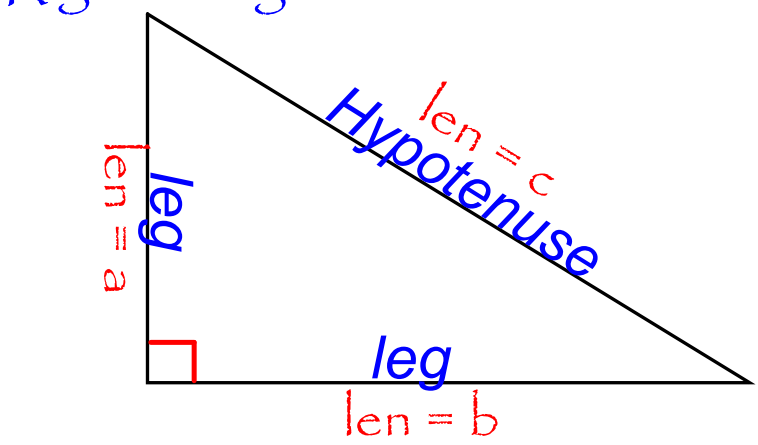
Pythagorean Theorem (Thm 7-4)

Right triangle...



Pythagorean Theorem (Thm 7-4)

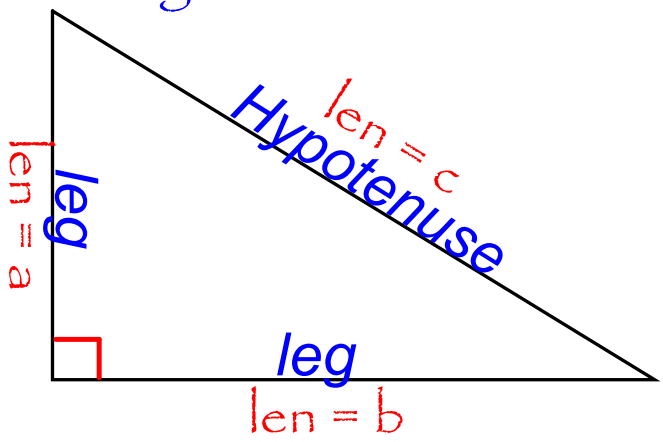
Right triangle...



Pythagorean Theorem (Thm 7-4)

$$a^2 + b^2 = c^2$$

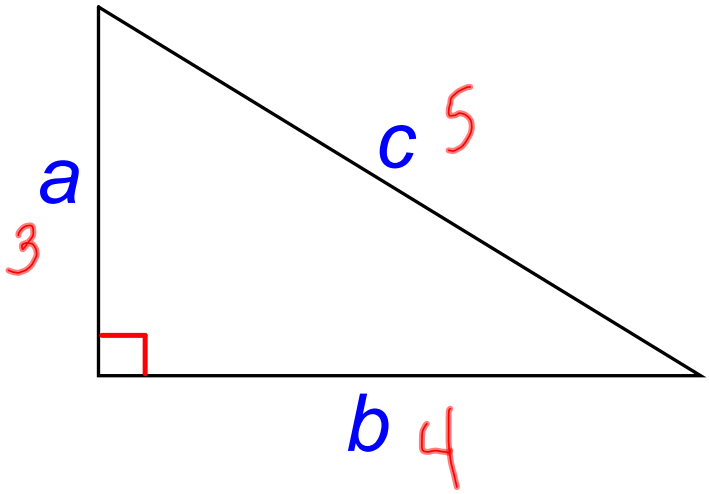
Right triangle...



Pythagorean Theorem (Thm 7-4)

$$a^2 + b^2 = c^2$$

example: 3, 4, 5



a^2

$a^2 = ?$

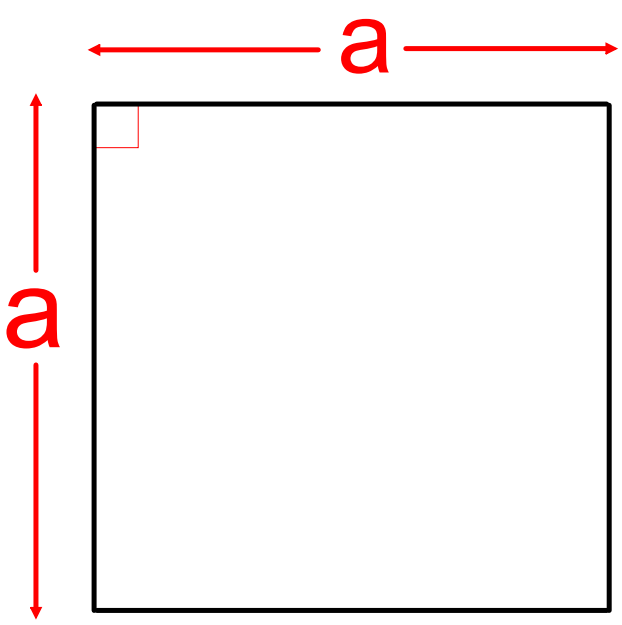
$$a^2 = a \cdot a$$

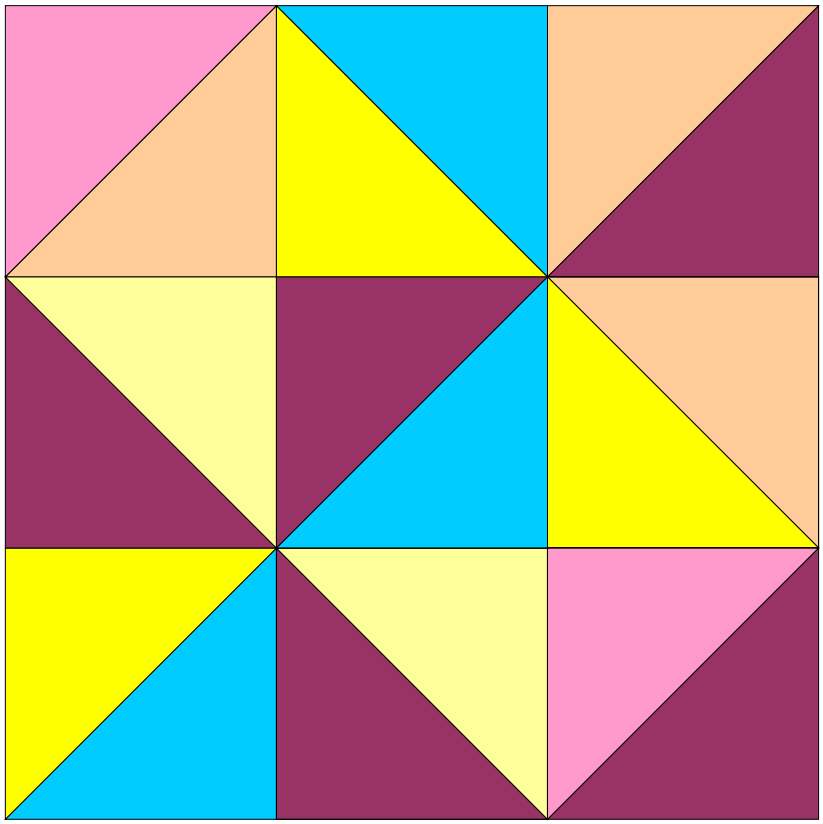
Algebraic

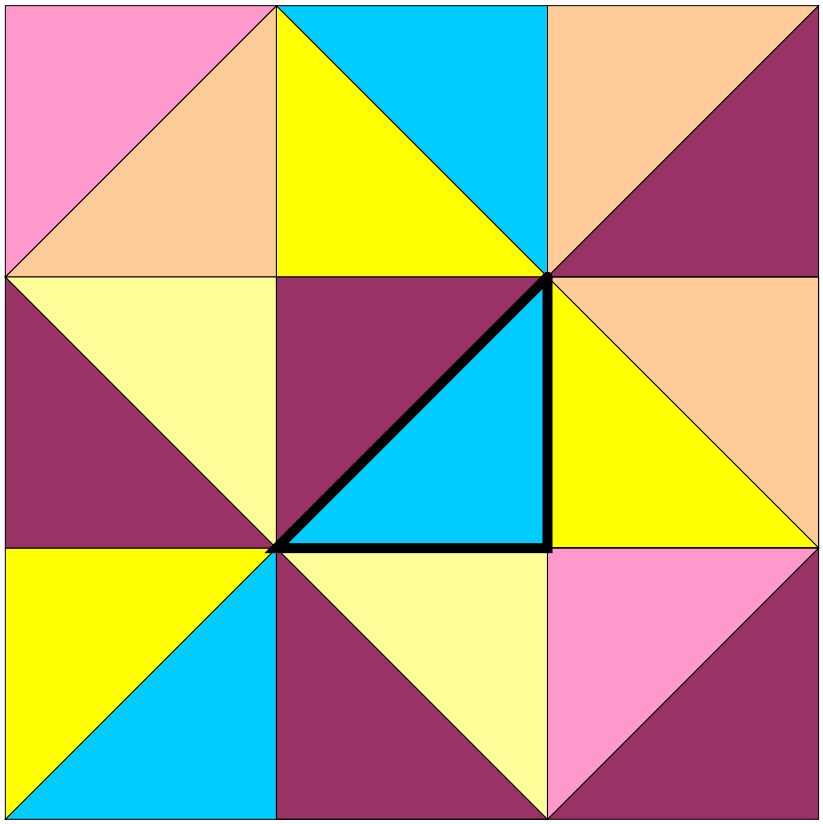
a^2

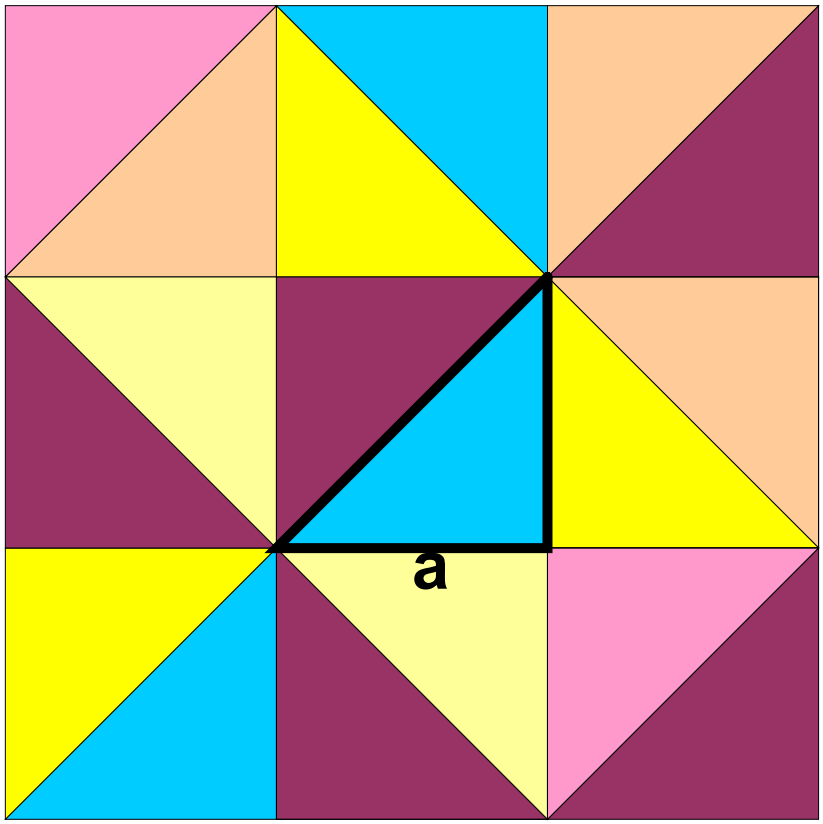
- Geometrically

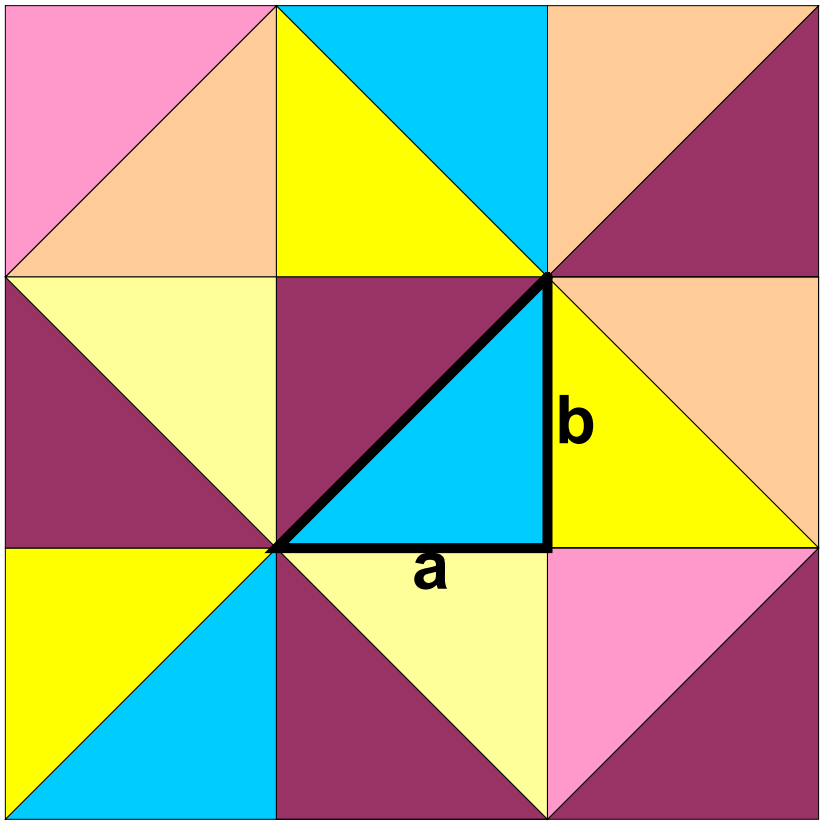
a^2 - Geometrically

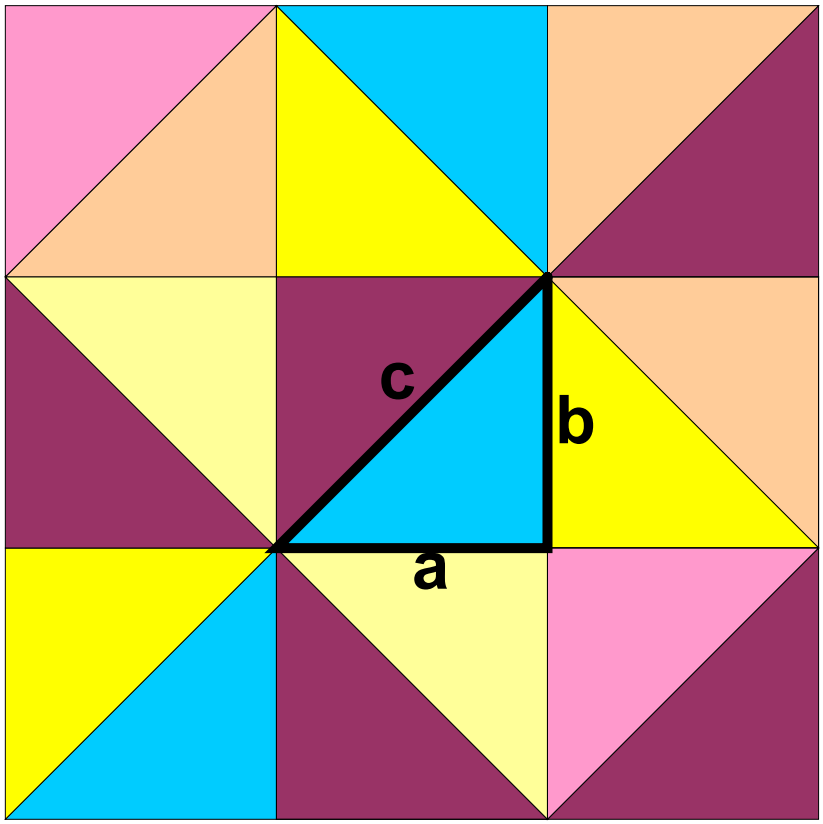


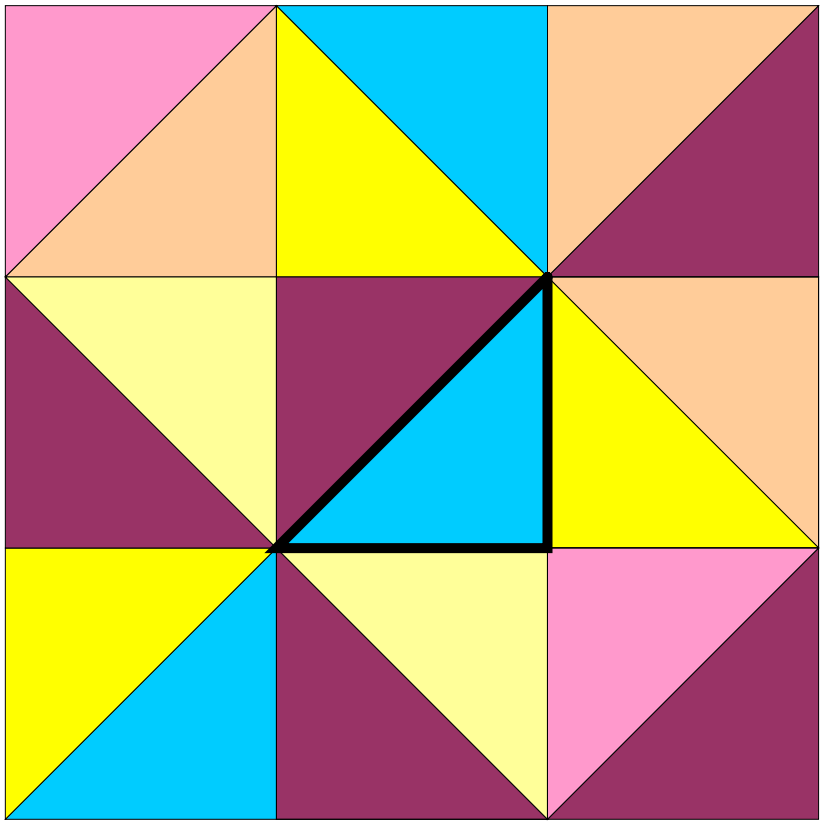


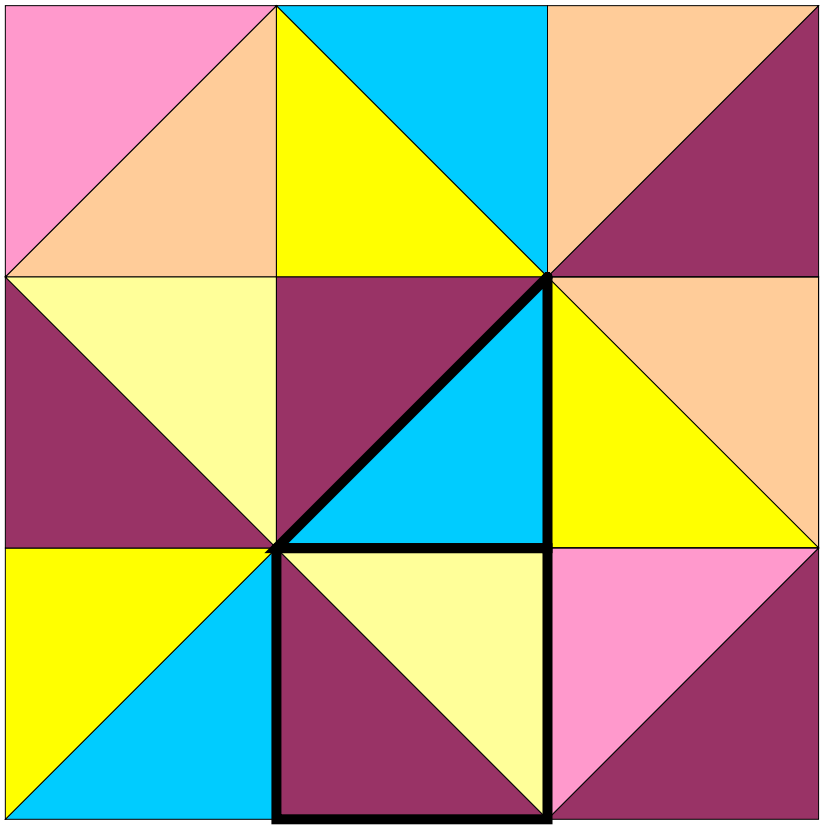


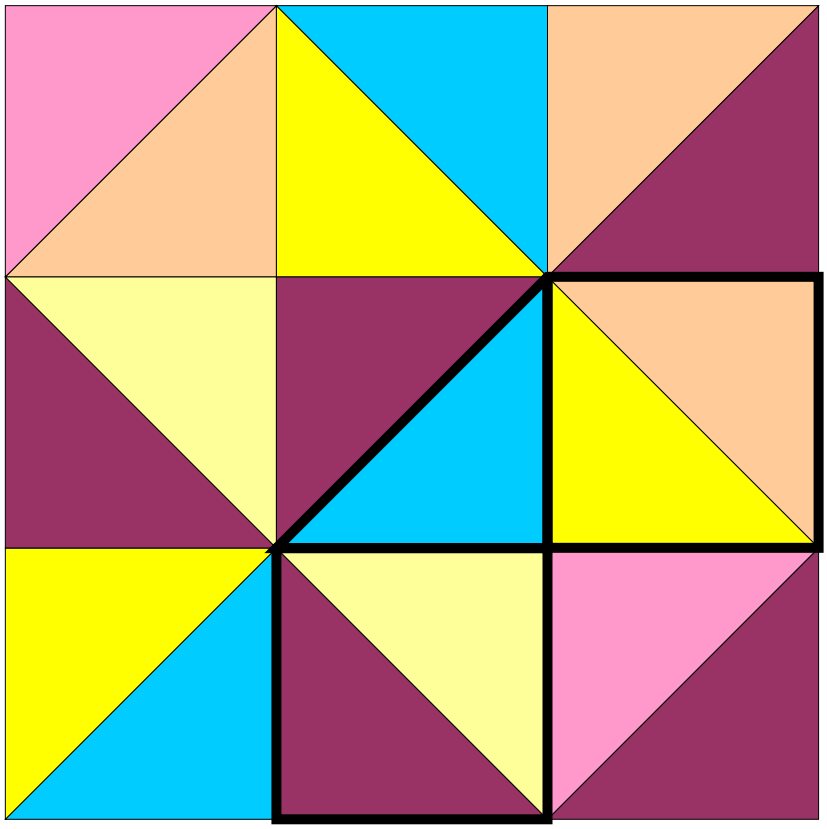

a

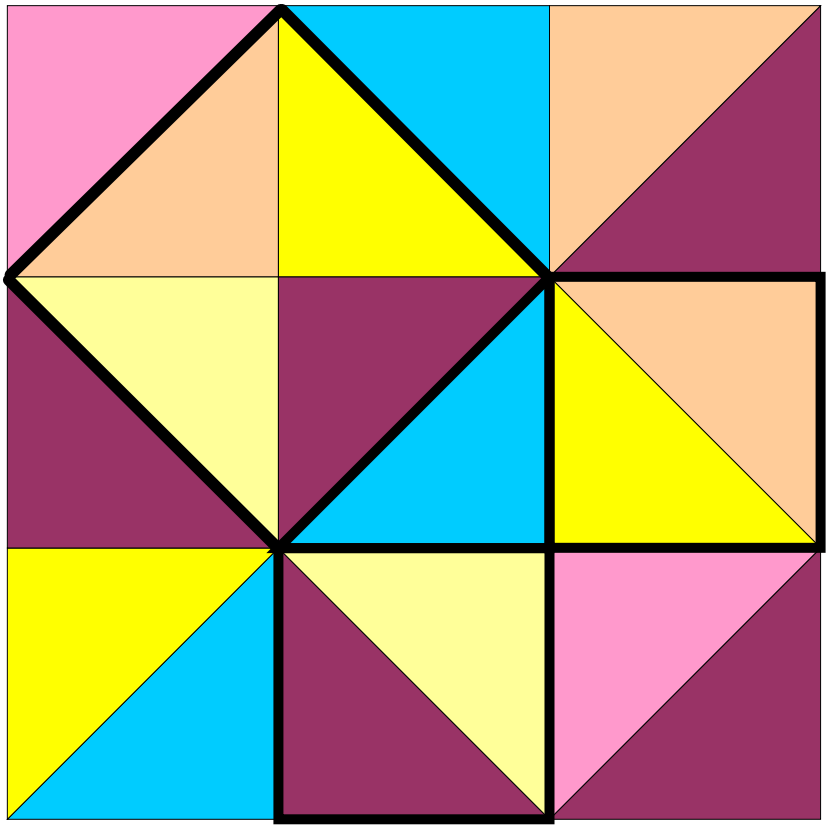

b
a

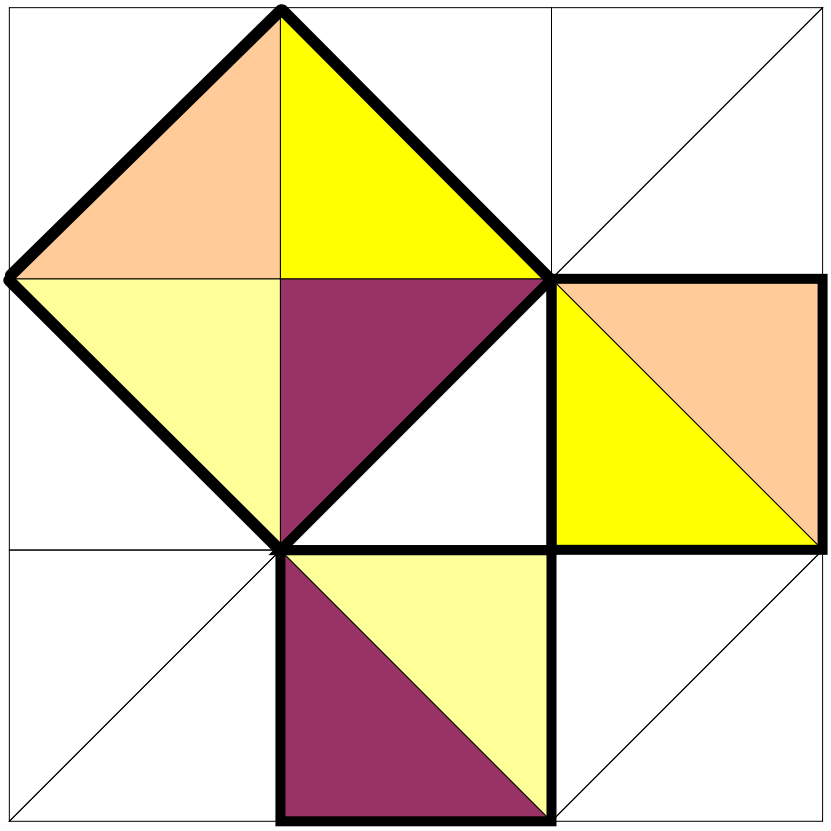

c
b
a

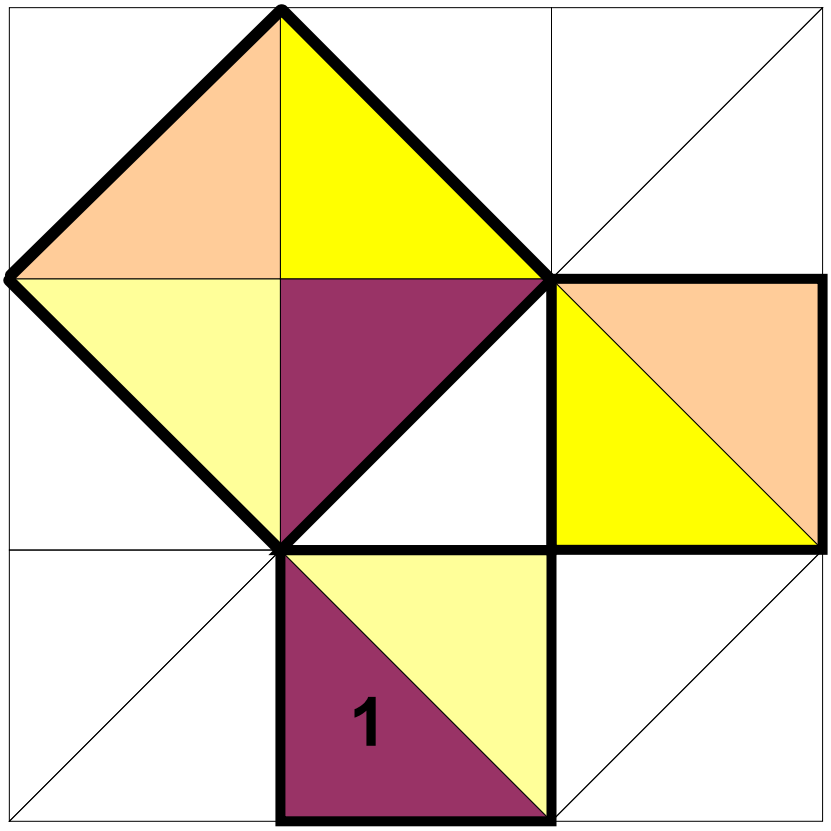








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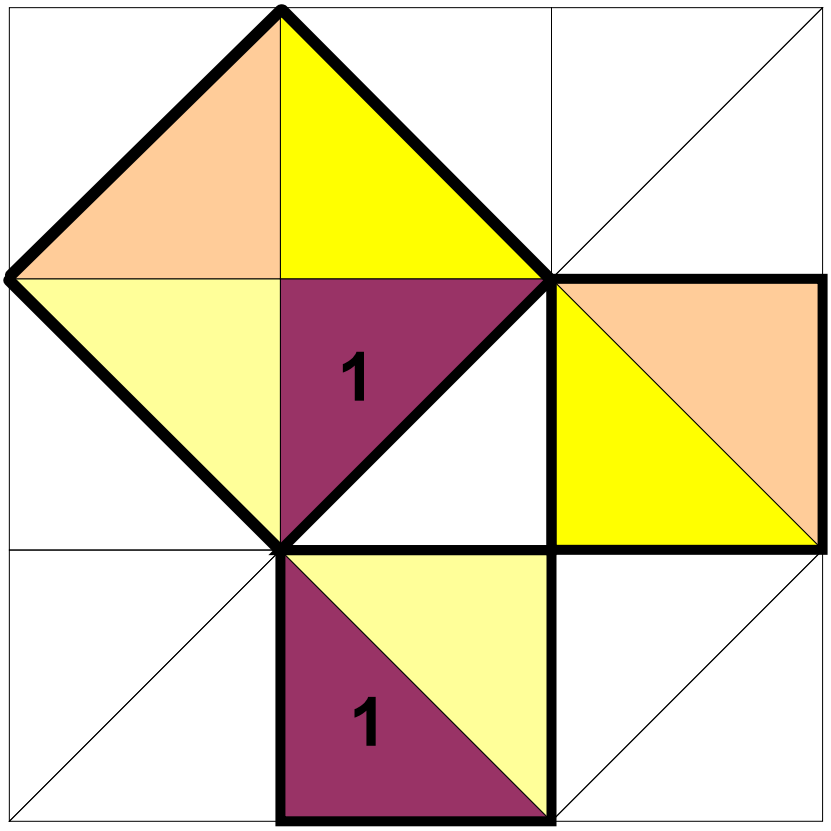
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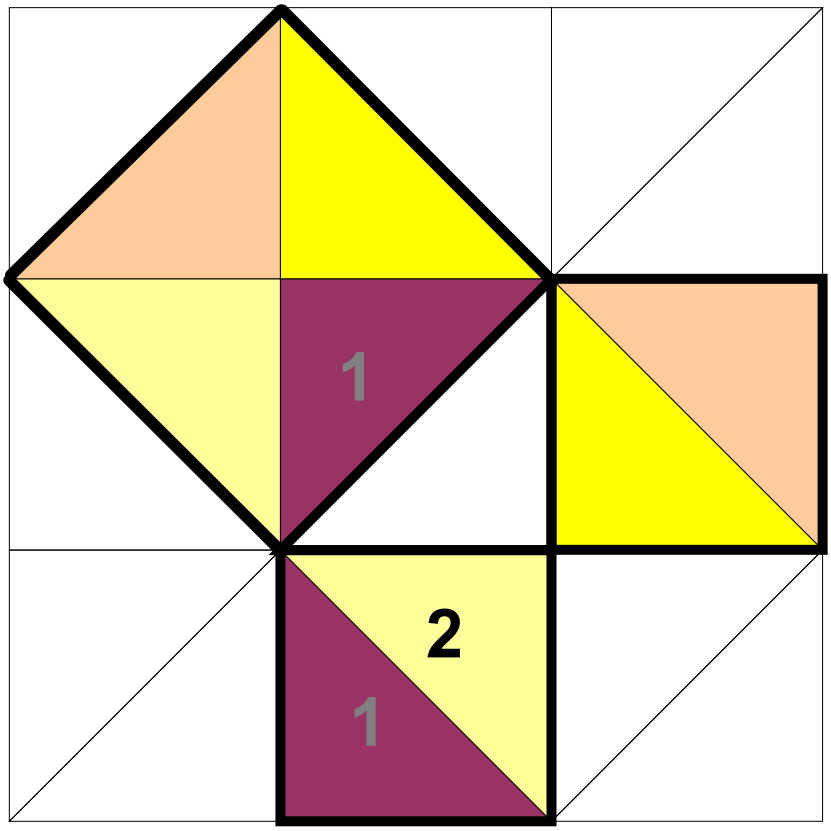
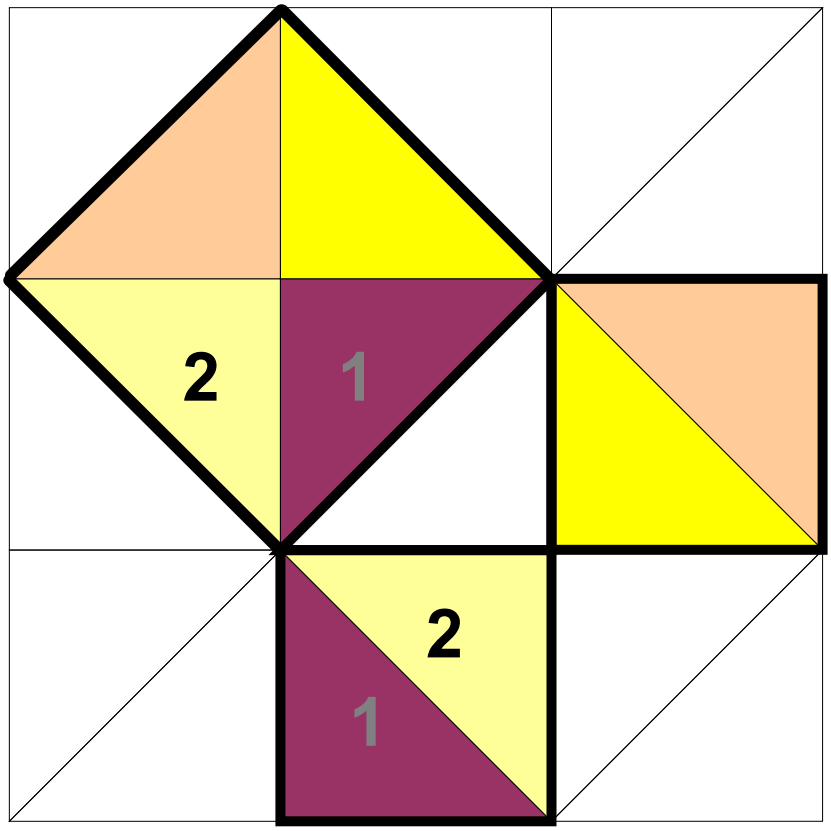
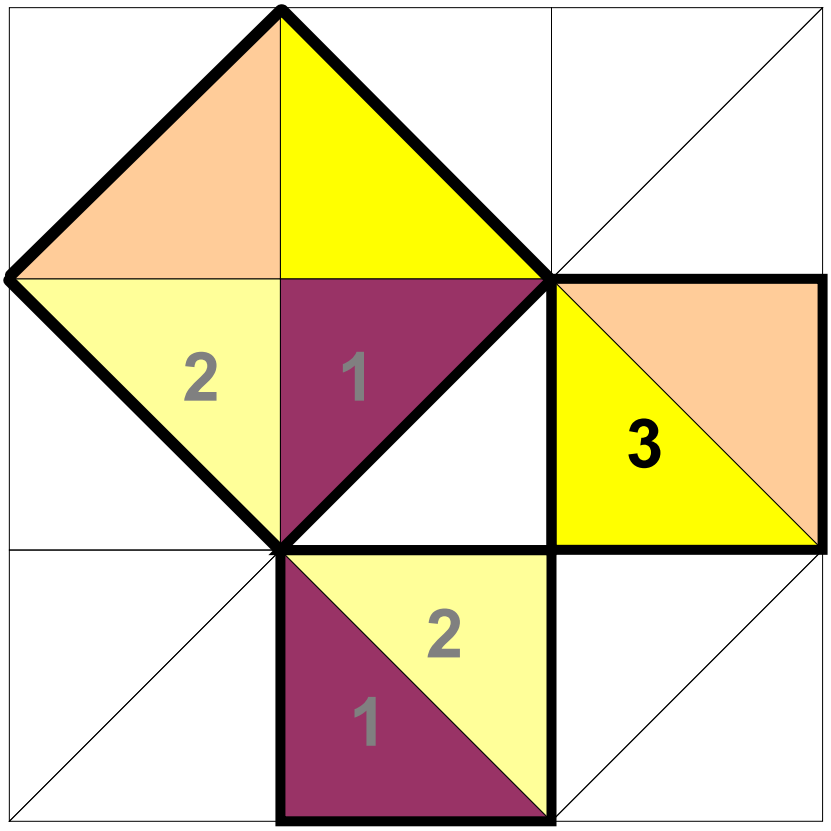
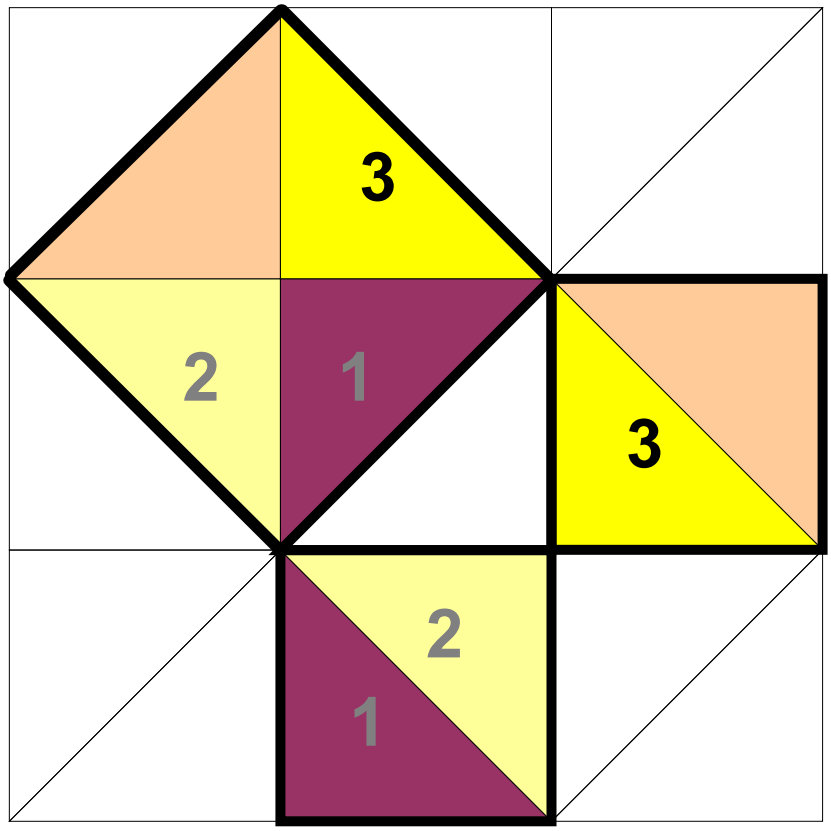
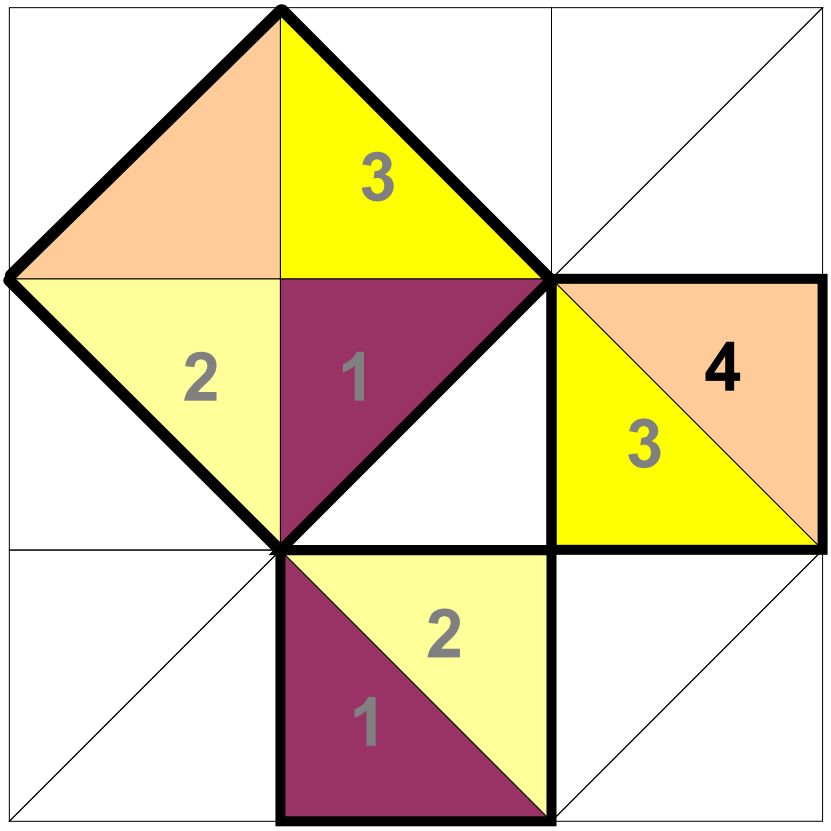
1

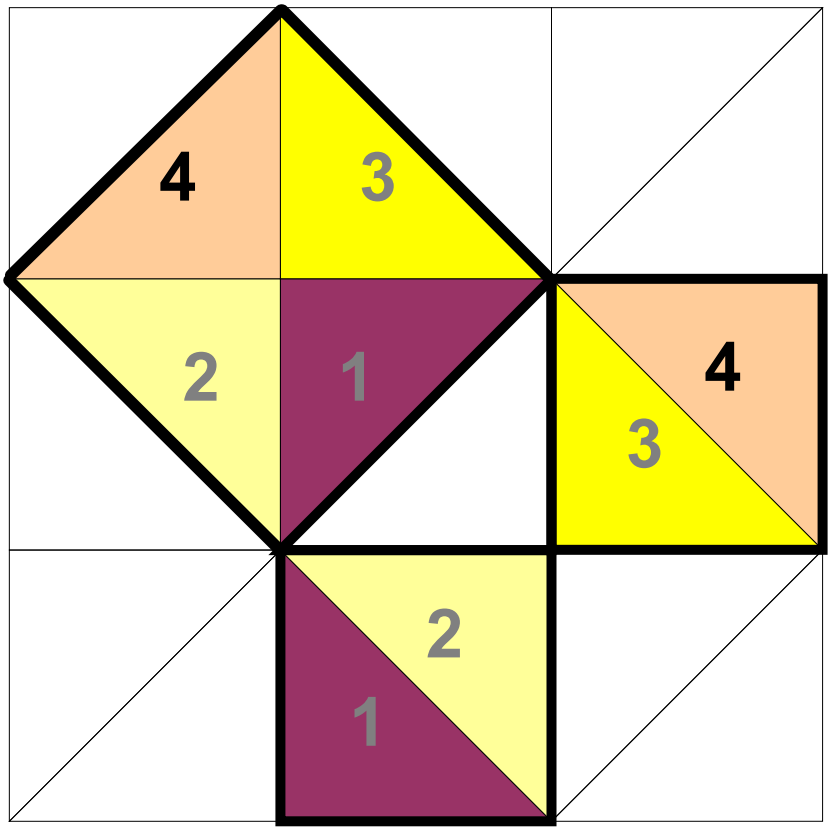

1
2
1

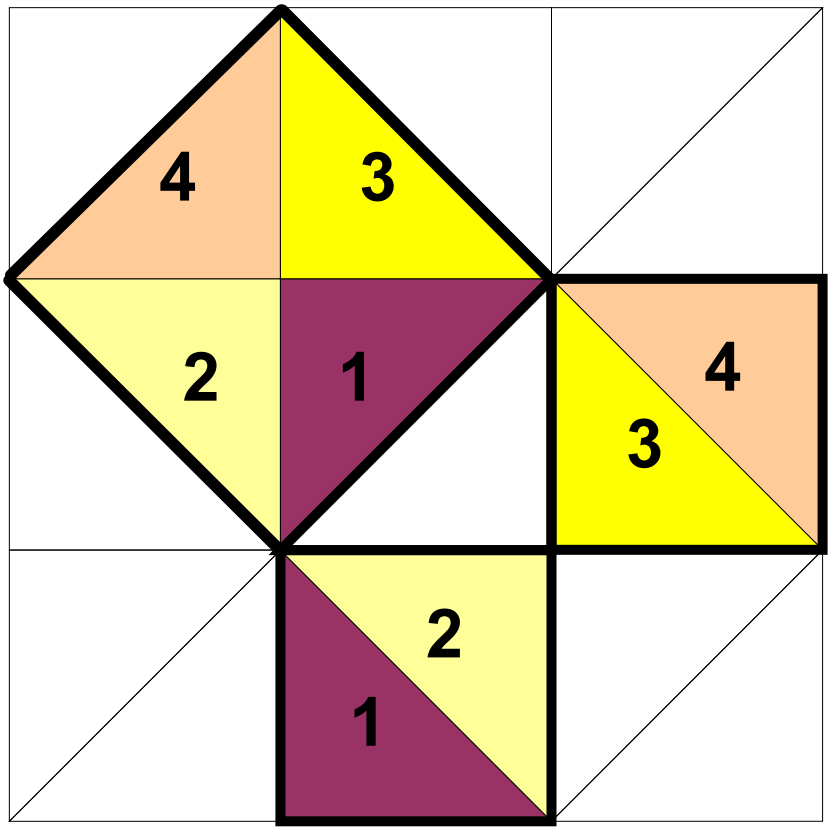

2
1
2
1

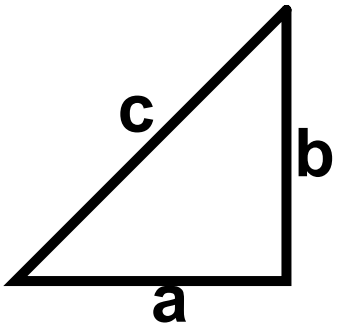

2
1
3
2
1

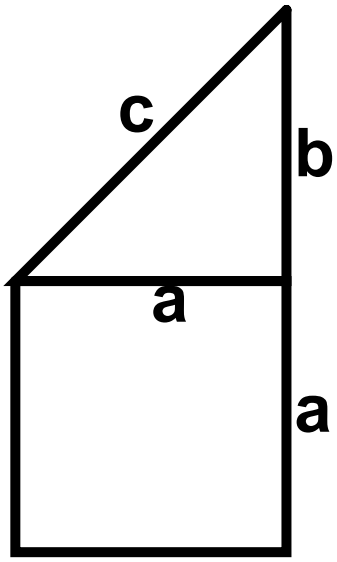

3
2
1
3
2
1


3
2
1
4
3
2
1

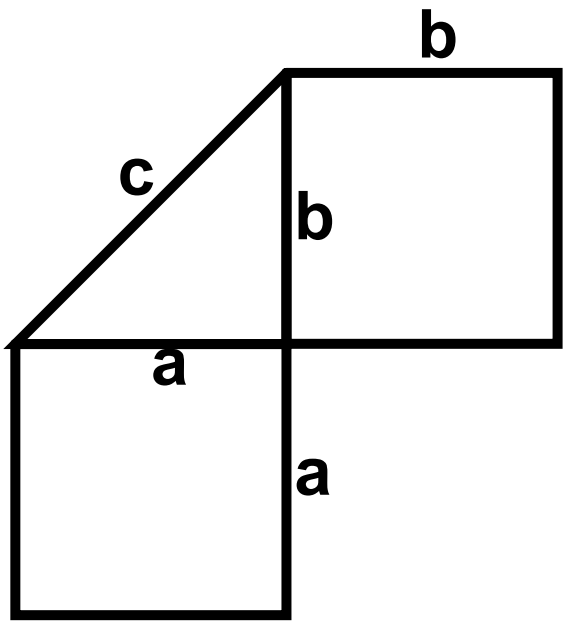

4
3
2
1
4
3
2
1


4
3
2
1
4
3
2
1

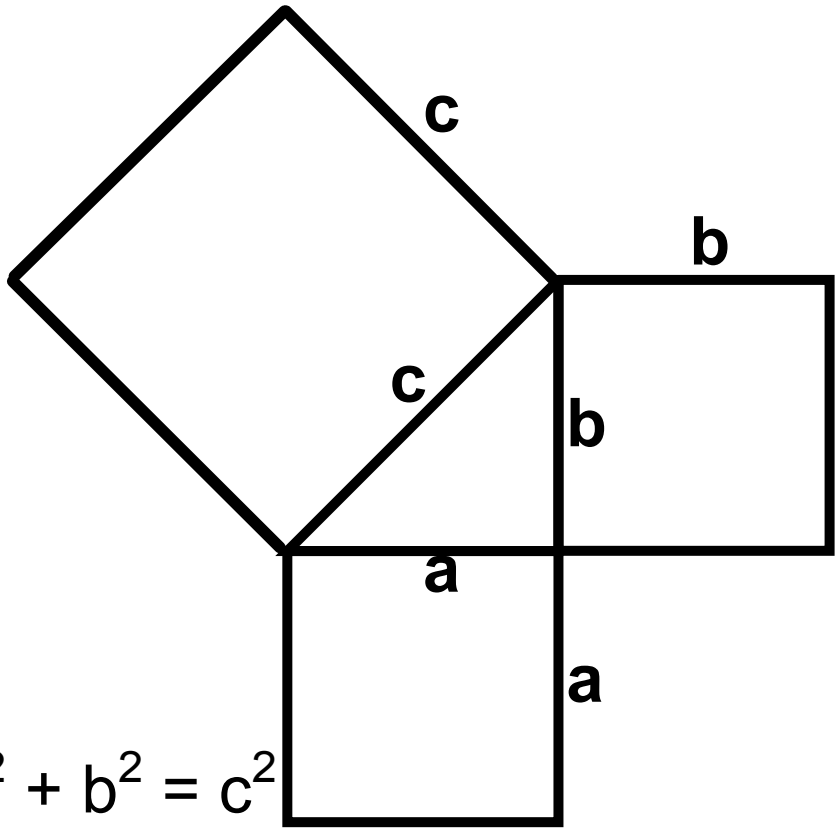

c
b
a



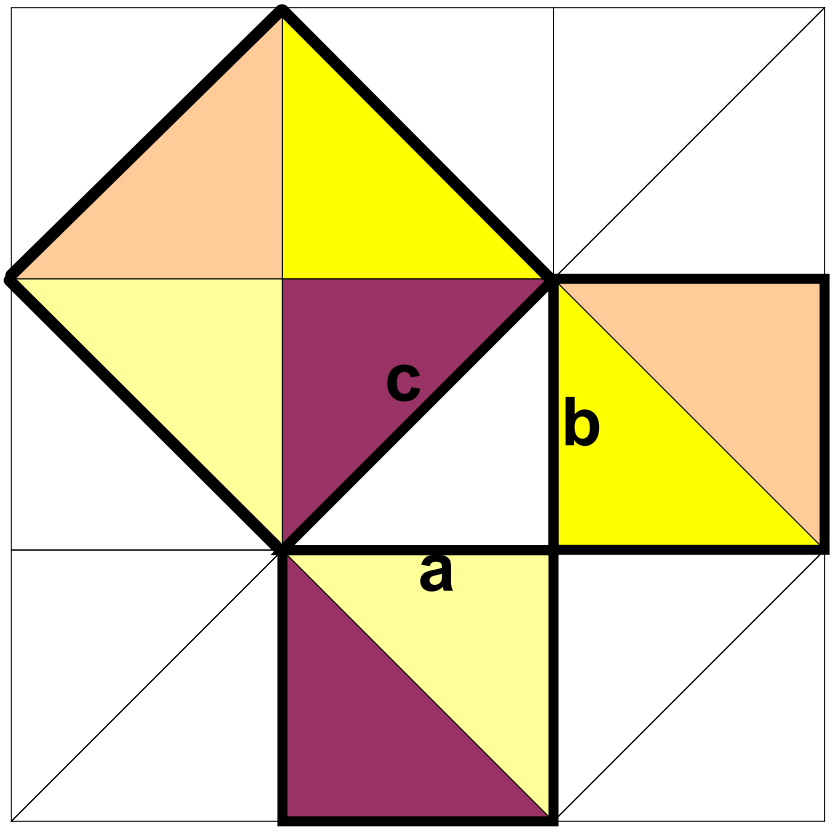
a^2

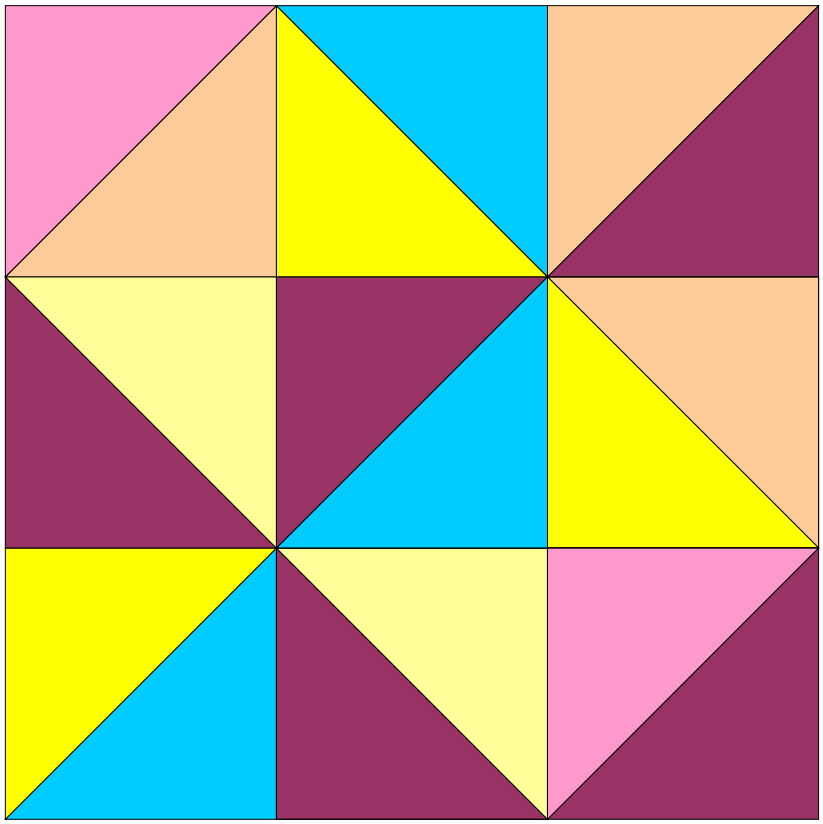


$a^2 + b^2$



$a^2 + b^2 = c^2$


c
b
a



Pythagorean Triples

Pythagorean Triples

3 #'s that satisfy the Pythagorean Theorem

Pythagorean Triples

3 #'s that satisfy the Pythagorean Theorem

a, b, c whole numbers $\ni$ $a^2 + b^2 = c^2$

$\ni$ such that

Pythagorean Triples

3 #'s that satisfy the Pythagorean Theorem

a, b, c whole numbers $\ni a^2 + b^2 = c^2$

3, 4, 5

Pythagorean Triples

3 #'s that satisfy the Pythagorean Theorem

a, b, c whole numbers $\ni a^2 + b^2 = c^2$

3, 4, 5

6, 8, 10

Pythagorean Triples

3 #'s that satisfy the Pythagorean Theorem

a, b, c whole numbers $\ni a^2 + b^2 = c^2$

3, 4, 5

6, 8, 10

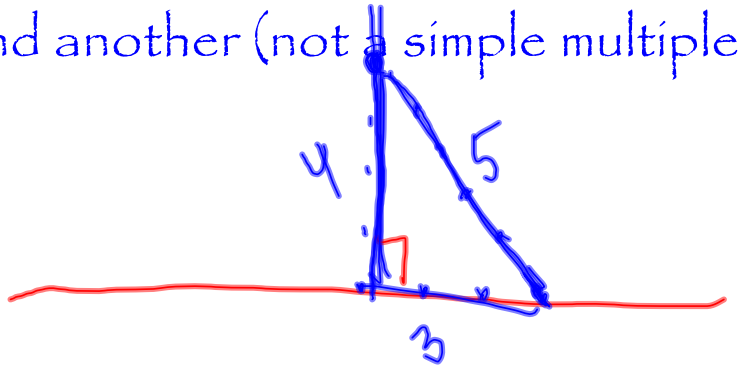
14, 48, 50

$14^2 + 48^2 = 2500$

$50^2 = 2500$

= yes!

...can you find another (not a simple multiple)?



Uses of Pythag Thm

Uses of Pythag Thm

- Form a right angle (and Δ)

Uses of Pythag Thm

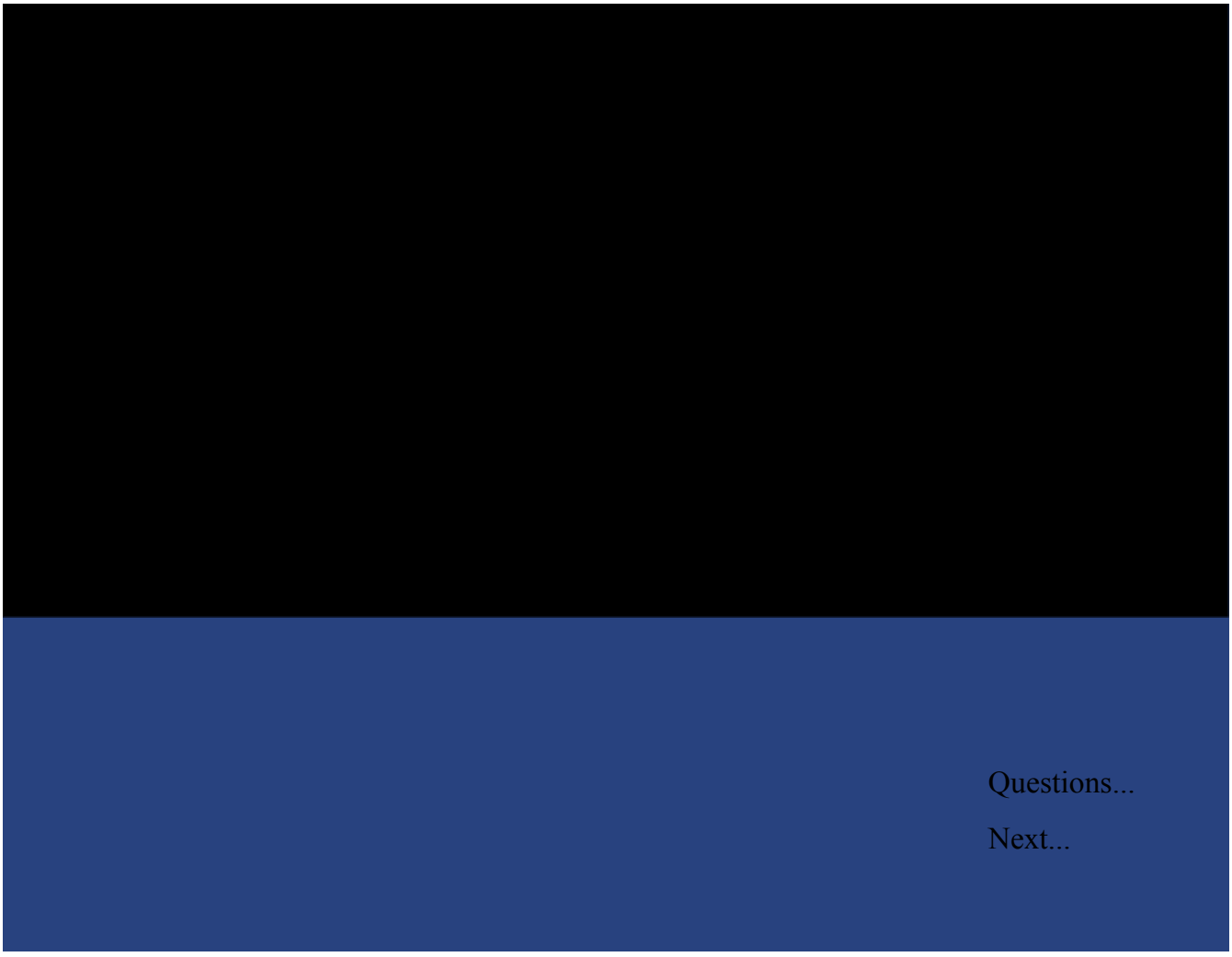
- Form a right angle (and Δ)
- Find legs or hypot of a rt Δ

Uses of Pythag Thm

- Form a right angle (and Δ)
- Find legs or hypot of a rt Δ
- Find area of a Δ

Uses of Pythag Thm

- Form a right angle (and Δ)
- Find legs or hypot of a rt Δ
- Find area of a Δ
- Classify Δ as right, acute, or obtuse



Questions...

Next...

Example 1

Is **4, 6, 7** a Pythag Triple (Y/N)?

$4^2 + 6^2 \stackrel{?}{=} 7^2$

$16 + 36 = 52$

49

$\neq$

NO

1 No

Yes

Example 2

Is **16, 30, 34** a Pythag Triple (Y/N)?

$16^2 + 30^2 \overset{?}{=} 34^2$

$256 + 900 = 1156$

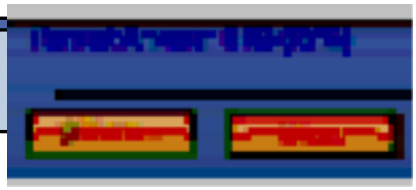
1156

$=$ yes

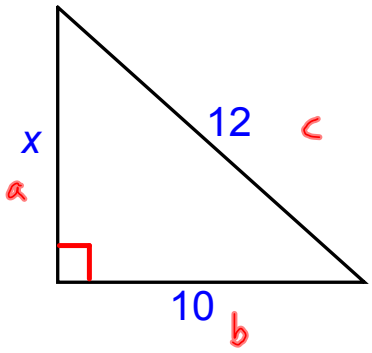
2 Yes

No

Example 3 - Use Pythag Thm to...



Find x (round to 100th):



$a^2 + b^2 = c^2$

$x^2 + 10^2 = 12^2$

$x^2 = 12^2 - 10^2$

$x^2 = 144 - 100$

$\sqrt{x^2} = \sqrt{44}$

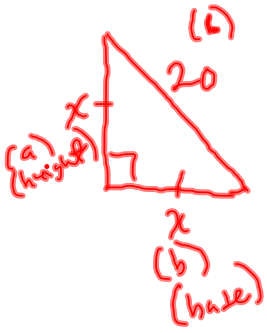
$x = 6.63$

3

Example 4 - Find area...

The hypot of an isos rt Δ is len 20 cm.

Find the area.



$a^2 + b^2 = c^2$

$x^2 + x^2 = 20^2$

$2x^2 = 400$

$x^2 = 200$

$x = \sqrt{200}$

$A = \frac{1}{2} b \cdot h$

$= \frac{1}{2}(\sqrt{200})(\sqrt{200})$

$= \frac{1}{2} \cdot 200$

$= 100$

...back

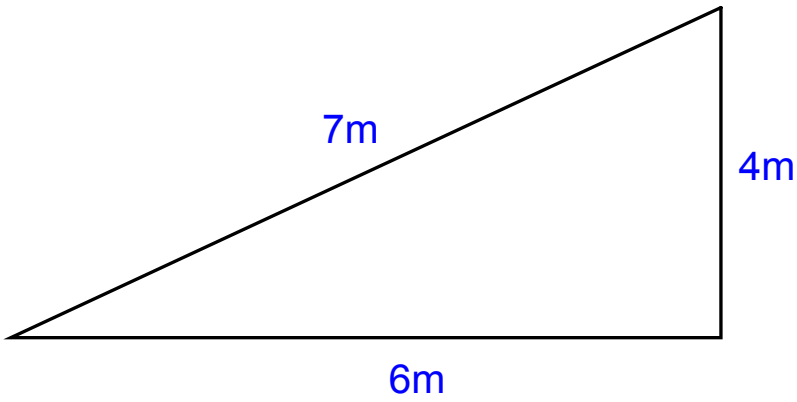
4

Converse of the Pythag Thm (Thm 7-5)

If the sum of the squares of
the lengths of 2 sides of a Δ
equals the square of the len of
the 3rd side, then the Δ is a rt Δ.

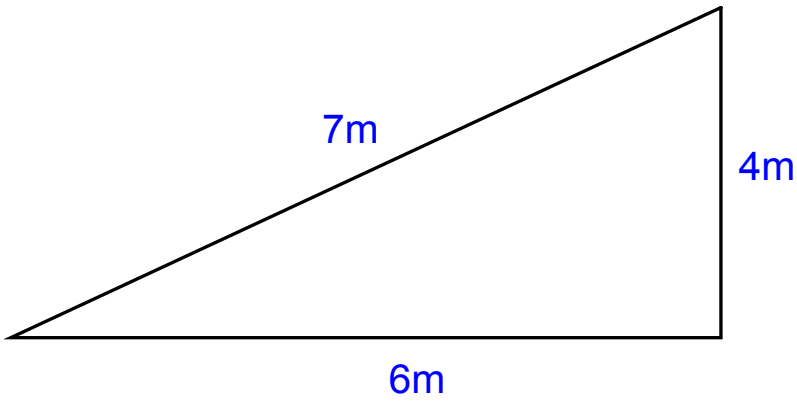
Converse of the Pythag Thm (Thm 7-5)

Is this a rt Δ?



Converse of the Pythag Thm (Thm 7-5)

Is this a rt Δ?



nope... $4^2 + 6^2 \neq 7^2$

Using the Pythag Thm to classify Δ's

$c^2 = a^2 + b^2$ ⟶

$c^2 \neq a^2 + b^2$ ⟶

$c^2 > a^2 + b^2$ ⟶

$c^2 < a^2 + b^2$ ⟶

Using the Pythag Thm to classify Δ's

$c^2 = a^2 + b^2$ ⟶ right Δ

$c^2 \neq a^2 + b^2$ ⟶

$c^2 > a^2 + b^2$ ⟶

$c^2 < a^2 + b^2$ ⟶

Using the Pythag Thm to classify Δ's

$c^2 = a^2 + b^2$ ⟶ right Δ

$c^2 \neq a^2 + b^2$ ⟶ not a right Δ

$c^2 > a^2 + b^2$ ⟶

$c^2 < a^2 + b^2$ ⟶

Using the Pythag Thm to classify Δ's

$c^2 = a^2 + b^2$ ⟶ right Δ

$c^2 \neq a^2 + b^2$ ⟶ not a right Δ

$c^2 > a^2 + b^2$ ⟶ obtuse Δ

$c^2 < a^2 + b^2$ ⟶

Using the Pythag Thm to classify Δ's

$c^2 = a^2 + b^2$ ⟶ right Δ

$c^2 \neq a^2 + b^2$ ⟶ not a right Δ

$c^2 > a^2 + b^2$ ⟶ obtuse Δ

$c^2 < a^2 + b^2$ ⟶ acute Δ

Thm 7-6

If $c^2 > a^2 + b^2$ then obtuse Δ

Thm 7-7

If $c^2 < a^2 + b^2$ then acute Δ

L7-2 HW Problems

Pg 355 #1-23 odd

Pg 360 #1-43 odd, 49, 51, 62-64, 71-75