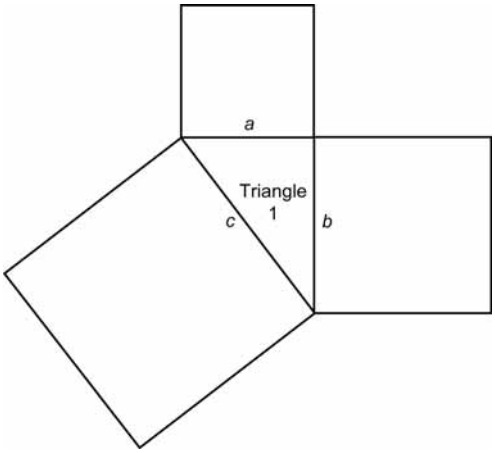
Math 8 Date:_____

3.4 Notes: Using the Pythagorean Theorem

Review:

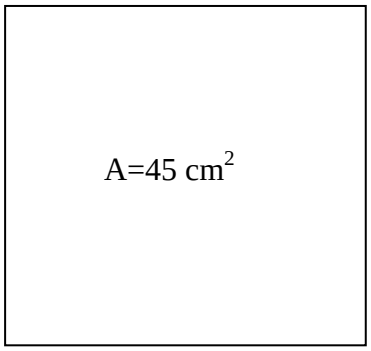


Explain how the diagram is related to the addition statement: $a^2 + b^2 = c^2$

How can you prove this has a 90° angle.
- if two small areas add to make large area.

Areas
a^2
b^2
c^2

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



How do you find the length of one side for the square at left?

length = $\sqrt{\text{area}}$

length = $\sqrt{45}$

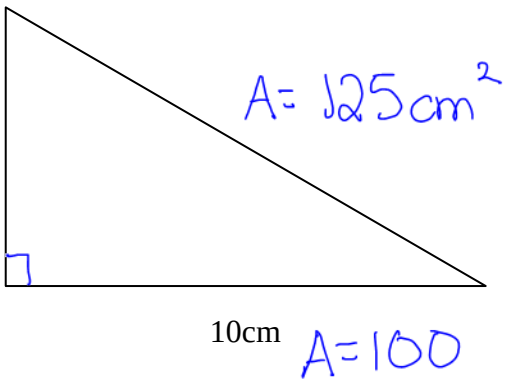
= 6.8

How would you find the length of the missing hypotenuse for the right triangle?

① Find the areas.

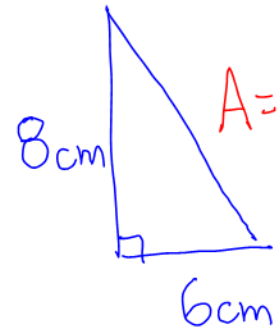
② Find the missing area

③ Use $\sqrt{}$ to find length



$\sqrt{125}$ = 11.17... = 11.2

A=64



A=100

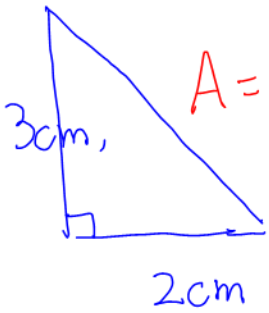
A=36

$\sqrt{100} = 10\text{cm}$

missing side is 10cm.

$3 \times 3 = 9$ $4 \times 4 = 16$

A=9

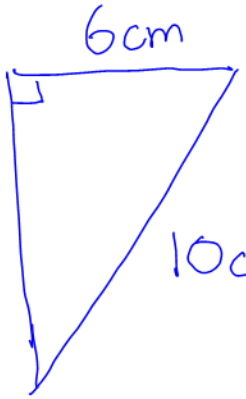


A=13

A=4

$\sqrt{13} = 3.8$

A=36

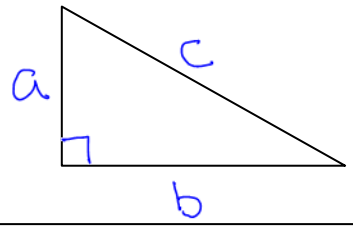


A=64

A=100

$\sqrt{64} = 8.$

The Pythagorean Theorem



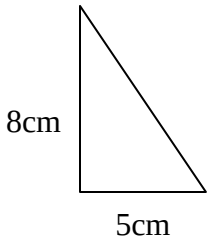
$a^2+b^2=c^2$

① Find the areas.

② Use the known areas to find missing area.

③ $\sqrt{}$ missing area to find the missing side.

Find the missing sides for each of the triangles below:



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

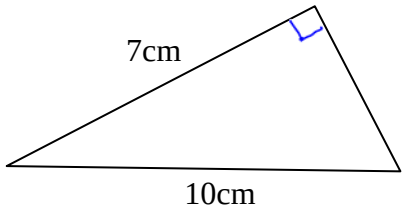
$8^2+5^2=\_\_$

$64+25=\_\_$

$c^2=89$

$c=\sqrt{89}$

$c=9.4$



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

$\_\_+7^2=10^2$

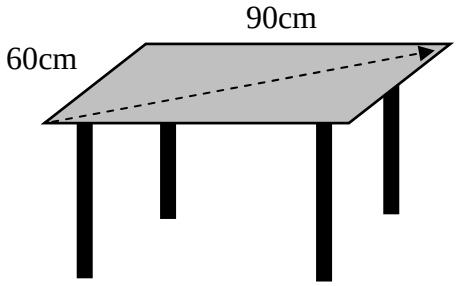
$\_\_+49=100$

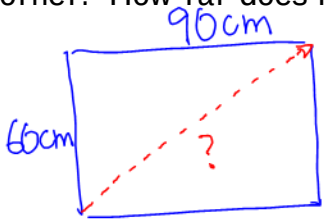
$a^2=51$

$a=\sqrt{51}$

$a=7.1$

Jürgen is cooking meatballs in his kitchen. One of the meatballs rolls from one corner of the table, diagonally to the other corner. How far does it roll?





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

$60^2+90^2=\_\_$

$3600+8100=\_\_$

$c^2=11700cm^2$

$c=\sqrt{11700}$

$c=108.2cm.$

p104 # 3-5
#7-13
* 15

Logan