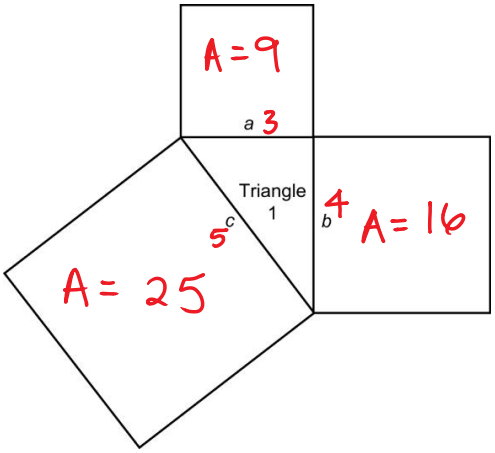
Date:_____

3.4 Notes: Using the Pythagorean Theorem

Review:



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

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

$3^2+4^2=c^2$

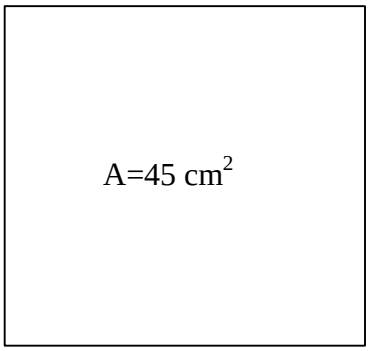
$9+16=c^2$

$25=c^2$

$\sqrt{25}=c$

$5=c$

The area of the big square is equal to the area of two smaller squares combined.



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

one side $= \sqrt{A}$

$= \sqrt{45}$

≈ 6.7

$\sqrt{36} < \sqrt{45} < \sqrt{49}$

$6 < \sqrt{45} < 7$

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

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

$5^2+10^2=c^2$

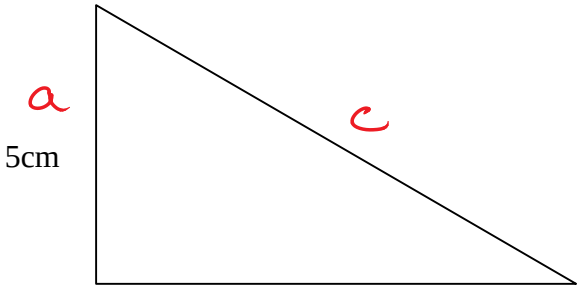
$25+100=c^2$

$125=c^2$

$\sqrt{125}=c$

$11.1 \approx c$

$c = 11.18$

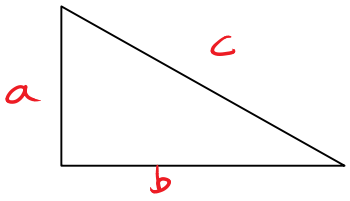


$\sqrt{121} < \sqrt{125} < \sqrt{144}$

$11 < \sqrt{125} < 12$

The hypotenuse is approximately 11.1cm long.

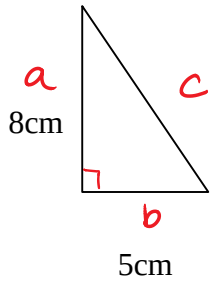
The Pythagorean Theorem



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

c = length of the hypotenuse

Find the missing sides for each of the triangles below:



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

$8^2+5^2=c^2$

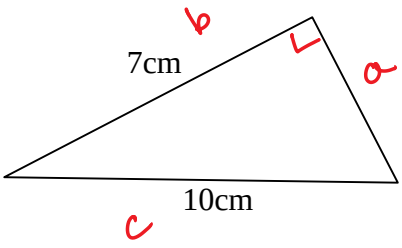
$64+25=c^2$

$89=c^2$

$\sqrt{89}=\sqrt{c^2}$

$9.43=c$

9.43cm



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

$a^2+7^2=10^2$

$a^2+49=100$

$-49 \quad -49$

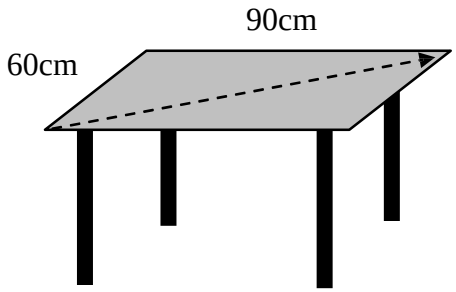
$a^2=100-49$

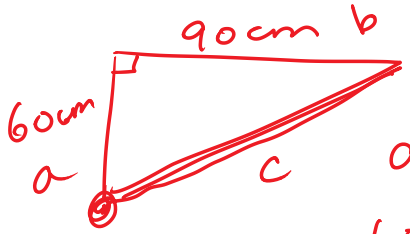
$a^2=51$

$a=\sqrt{51}$

$a \simeq 7.2cm$

Jason 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?





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

$60^2+90^2=c^2$

$3600+8100=c^2$

$11700=c^2$

$\sqrt{11700}=c$

$108.2cm=c$

The meatball travelled 108.2cm.