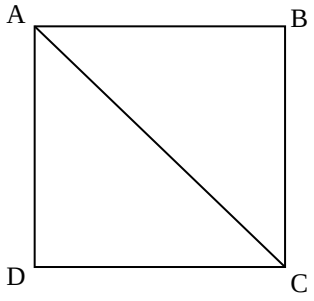
5.4-5.5 Special Right Triangles
Pre-AP Geometry

Name _____
Period _____ Date _____

EXPLORE/EXPLAIN

ACTIVITY 1

Step 1 Each person in your group needs to draw a square with a different side length. Label the vertices A, B, C, and D.



Step 2 Draw the diagonal $\overline{AC}$.

Step 3 Use a protractor to measure $\angle CAB$ and $\angle ACB$.
$m\angle CAB$ = _____ $m\angle ACB$ = _____

Step 4 Use the Pythagorean Theorem to find AC. Write in simplest radical form.

Fill in the chart below.

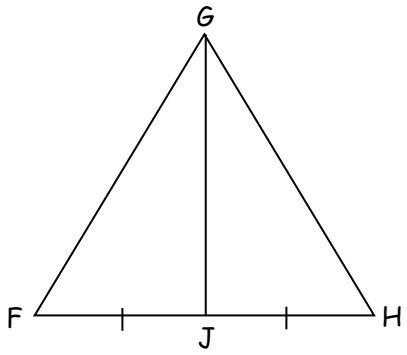
Triangle	Leg	Leg	Hypotenuse
1			
2			
3			
4			

Analyze the results:

1. Conjecture: What is the length of the hypotenuse of a 45-45-90 triangle with legs that are n units long?

ACTIVITY 2

Step 1 Each person in your group needs to draw an equilateral triangle with a different **even** numbered side length. Label the vertices F, G, and H.



Step 2 Find the midpoint of $\overline{FH}$ and label it J.
Draw median $\overline{GJ}$

Step 3 Use a protractor to measure $\angle FGJ$, $\angle F$ and $\angle GJF$.
$m\angle FGJ$ = _____, $m\angle F$ =_____, $m\angle GJF$ = _____

Step 4 Use the Pythagorean Theorem to find GJ. Write in simplest radical form.

Fill in the chart below.

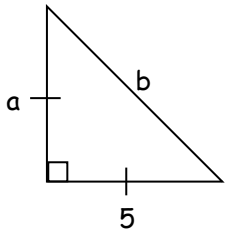
Triangle	Short Leg	Long Leg	Hypotenuse
1			
2			
3			
4			

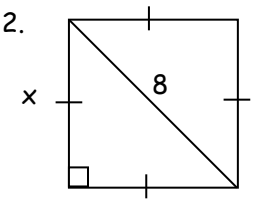
Analyze the results:

2. Conjecture: What are the lengths of the long leg and the hypotenuse of a 30-60-90 triangle with a short leg n units long?

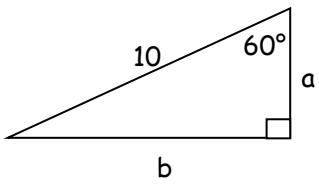
ELABORATE

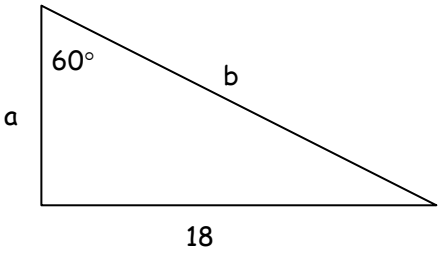
Practice:

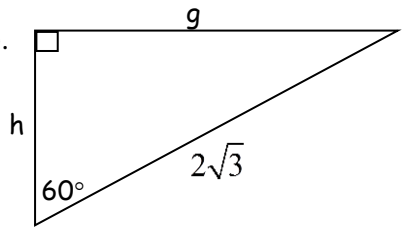
1. 

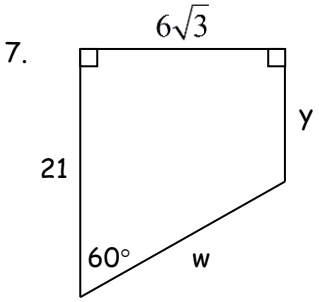
2. 

3. What is the length of the diagonal of a square with a perimeter of 20 feet?

4. 

5. 

6. 

7. 

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