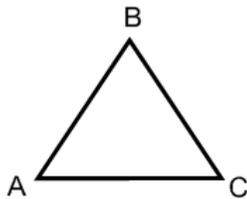


# Special right triangle worksheet

Follow the instructions below carefully. Ask your group members if you have any questions before you ask the teacher. Use your agenda's Math section to get reminders on the use of certain theorems.

## Special Right Triangle I

1. Take out a piece of paper and draw an equilateral triangle, labeling the vertices A, B and C, with each leg having a length of 6 inches. Find the number of degrees in each angle. Angle A= \_\_\_\_\_ B=\_\_\_\_\_ C=\_\_\_\_\_



2. Draw a perpendicular line from angle B to the opposite side and label the point "D". There is a theorem you learnt that says that "A perpendicular line drawn from any vertex of an equilateral triangle to the opposite base bisects the base".
3. How many triangles have you created now that you've bisected the base? \_\_\_\_\_
4. Using the theorem above, find the new lengths of sides AD and CD in each of the triangles you created
5. Label the number of degrees in each angle of the 2 new triangles you created. What did the perpendicular bisector do to angle B? \_\_\_\_\_
6. Calculate the length of the perpendicular line BD you drew using a theorem you're familiar with and leave your answer in Simplest Radical Form.
7. Repeat steps 1 through 6 drawing an equilateral triangle with a side length of 8".
8. Repeat steps 1 through 6 drawing an equilateral triangle with a side length of 12"

Answer the following questions:

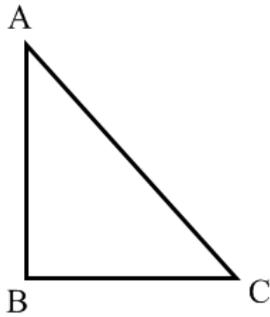
- What do you notice about the relationship between sides AD, BD, and AB in all 3 triangles you created?
- The side opposite the  $30^\circ$  angle is always \_\_\_\_\_.
- The side opposite the  $60^\circ$  angle is always \_\_\_\_\_.

\*\*\*\*\*

## Special Right Triangle II

Perform the following steps:

1. Draw three *isosceles* right triangles, labeling each vertex A, B and C with the right angle at vertex B.



2. Set each leg of the first right triangle to 6 inches and calculate the hypotenuse leaving the answer in SRF (*Simplest Radical Form*).
3. Set each leg of the second right triangle to 8 inches and calculate the hypotenuse leaving the answer in SRF.
4. Set each leg of the first third right triangle to 12 and calculate the hypotenuse leaving the answer in SRF.
5. What pattern do you notice about the hypotenuse and the leg of each triangle?

---