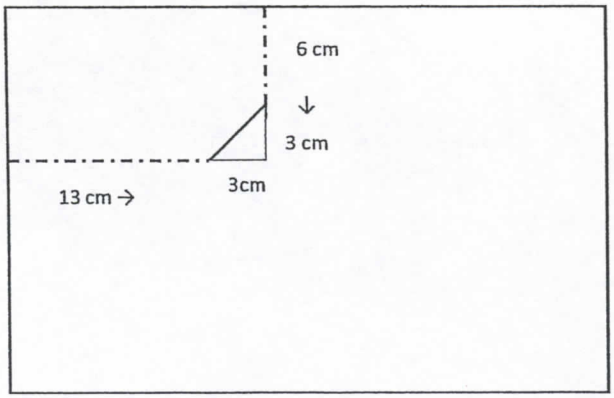
The Pythagorean Snail Project Name: _____

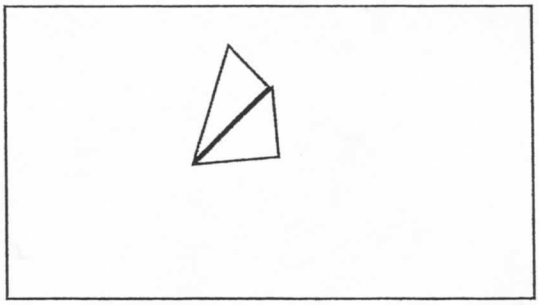
You will use a protractor and ruler to create a poster of the Pythagorean Snail. You may do the calculations on the back in pencil or on another sheet of paper. It needs to be creatively decorated and colored.

Step 1: Place the paper in landscape orientation. Measure from the top left hand corner 13 cm to the right and 6 cm down from the top. Draw a rectangle faintly in pencil. Then measure a right triangle with legs of 3 cm in the rectangle as shown below.



Step 2: Use the Pythagorean Theorem to calculate the length of the hypotenuse. Write your answer to 4 decimal places.

Step 3: Using the hypotenuse of the 1st triangle, create another right triangle on top of the previous hypotenuse. The old hypotenuse will be one of the legs of the new triangle. Draw a perpendicular segment to this with the length of 3 cm. Then connect the two segments to form a new hypotenuse.

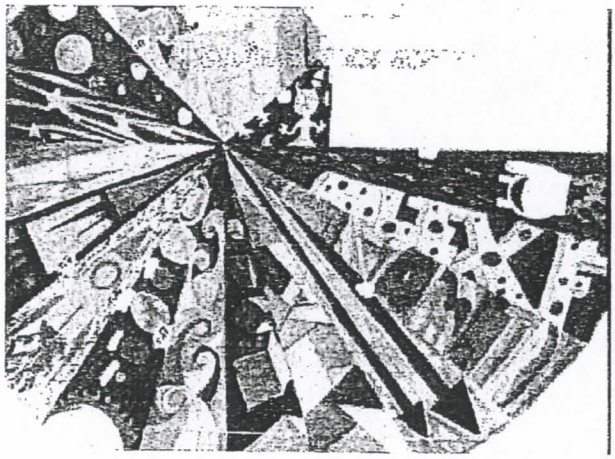


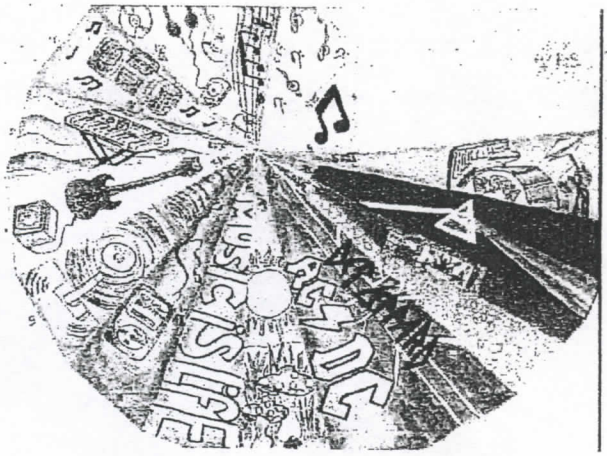
Step 4: Find the length of the new hypotenuse.

Step 5: Continue to repeat this process of connecting and constructing new triangles with a side of 3 cm, using the previous hypotenuse as the

other leg. Continue to show your calculations on the back of your paper. Construct triangles until you have 16. This should form a full spiral snail.

Step 6: Detail your Pythagorean Snail with one or more designs. Use color and creativity to create your picture.





4 decimal places

PYTHAGOREAN SNAIL CALCULATIONS

1. $C^2 = 3^2 + 3^2$
$C^2 = 9 + 9$
$C^2 = 81$
$C = \sqrt{81}$
$C = 4.2426\text{cm}$

2. $C^2 = 3^2 + (4.2426)^2$
$C^2 = 9 + 17.9997$
$C^2 = 26.9997$
$C = \sqrt{26.9997}$
$C = 5.1961\text{cm}$

3. $C^2 = 3^2 + (5.1961)^2$
$C^2 = 9 + 26.9995$
$C^2 = 35.9995$
$C = \sqrt{35.9995}$
$C = 5.99995 = 6.0000\text{cm}$

KEEP FINDING NEW HYPOTENUSE!

4.

5.

6.

7.

8.

9.

etc!!

10.