A Square Problem

How many non-congruent squares can you make on this 4 by 4 arrangement of dots? Vertices of all squares must be on the dots.

Hint—Consider rotated squares as well.

Divvy Up

How many different ways can you section this board into 2 congruent parts?

Win the 2011-2012 STEMatician Award

When you send in solutions, we score and keep track of your score.

Solutions for this issue due December 1, 2011. Awards in July 2012.

3 ways to submit:
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Measure Up

How many units long is

1. Segment $XA$?
2. Segment $XB$?
3. Segment $XC$?
4. Segment $XD$?
5. Segment $XE$?

How Many?

1. How many different length line segments can you draw on this 4 by 4 arrangement of dots?
2. What are their lengths?
Strange Shapes!!!

1. Which figure has the greatest perimeter? What is the perimeter?
2. Which figure has the greatest area? What is the area?

Suppose that the rows and columns of dots are streets in a town. Cinderella's house is at C. Beast's house is at B. How many different routes are there from C to B?

Different route means that at least one unit segment is different.
Balzano is a puzzle that will tap into your logical reasoning abilities. Read the directions carefully, then try your hand at Balzano Shapes.

**Directions:**

Your job is to figure out the Desired Arrangement of three or more shapes from clues that provide information about the shapes and their locations. Each clue consists of two parts.

The **Arrangement Column** shows sets of shapes in rows. In the Balzano below, the second row is arranged in order from left to right, triangle, circle, hexagon.

**Correct Shape in the Correct Position** identifies the number of shapes that are in the Desired Arrangement AND in the right positions. The second row has two shapes that are in the Desired Arrangement and in the right positions.

**Correct Shape in the Wrong Position** identifies the number of shapes in the Desired Arrangement that are the right shapes BUT not in the right positions. There is zero of these in the second row.

**Incorrect Shape** identifies the number of shapes that are not in the Desired Arrangement. There is one of these in the second row. This means that one of the three shapes does not belong in the Desired Arrangement.

<table>
<thead>
<tr>
<th>Arrangement</th>
<th>Correct shape in correct position</th>
<th>Correct shape in wrong position</th>
<th>Incorrect shape</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ △ ○</td>
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