

## Maker Space Project

G 1-2 Standard: G1a. I can draw rigid transformations

G 2-2. I can use theorems, postulates, or definitions about lines and angles.

You have learned about different properties of shapes as well as how to transform them. We have learned how to label points, lines, line segments, rays, angles, and some of the relationships they have. Our goal in this assignment is to put all of that together. In class we will be doing a normal graded project involving making a shape. The honors portion of this is simply an extension of that.

### Assignment Requirements

Design and then produce a shape in the maker space. It must have the following characteristics:

- 1) Be a figure composed of at least 3 (it can be more) mini-figures.
- 2) Each mini-figure must have either rotational or reflection symmetry when viewed from directly above as a 2D projection.
- 3) The whole figure must have either rotational or reflection symmetry when viewed from directly above as a 2D projection.
- 4) A drawing of the shape on graph paper labeled clearly using the mathematical terms we've learned in class. This will be where we will see the symmetry - the 3D version is another story.

A requirement of the assignment is actually producing a shape in the allotted time. We have two full class periods to be finished with this so you may want to spend time planning before we enter the classroom. Teamwork will be key. I will be grading you entirely on your final product.

### Total Points: 30 points (Class work grade)

#### 27 - 30 Points

Shape is complete with all requirements listed above and a neat and organized schematic design of the shape with no mistakes. The shape has more than 4 mini-shapes as a feature of its design.

#### 24 - 26 Points

Shape is complete with all requirements listed above and a schematic design of the shape with no mistakes. The shape has at least 4 mini shapes.

#### 21 - 23 Points

Shape is complete with most of the requirements listed above and a schematic design of the shape with no mistakes. The shape has at least 3 mini shapes.

#### 18 - 20 Points

Shape is almost complete with the requirements listed above. A schematic design may be incomplete.

#### 0 - 17 Points

The shape either does not exist, or is only partially planned out. This student did not follow the design process and may have attempted to create something that won't work in the allotted time with the allotted materials.

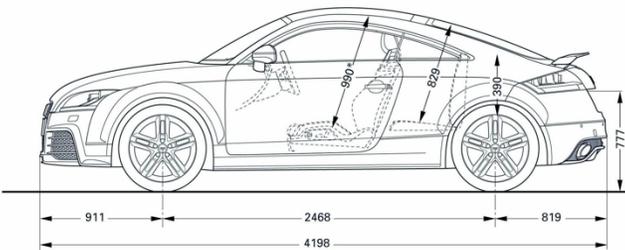
## Honors Extension:

A diagram written extremely neatly on grid paper with labels for each part of your shape is your final product. It will have:

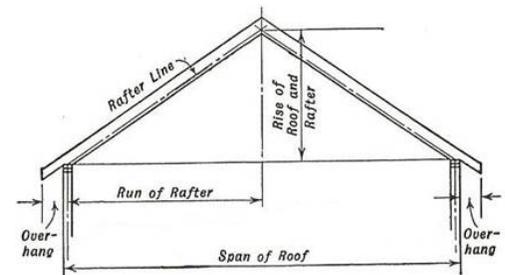
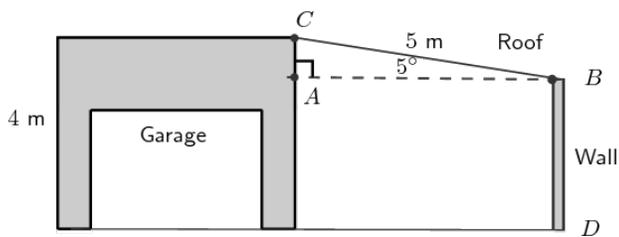
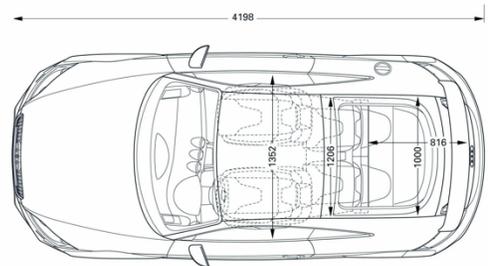
- 1) Each point labeled properly on the diagram
- 2) Angles measured and labeled on the diagram
- 3) The length, width, and heights of each portion of your shape labeled in centimeters
- 4) A top view and a side view diagram of your shape. (schematic design)
- 5) A 5 sentence paragraph about what the process of designing and creating your shape was like as well as what you learned. Comment on what you would do different.

Architects often will start their designs as sketches, but their final product consists of a full schematic design. Below are some examples of some schematics of architectural designs. They will not necessarily look like yours, but can be used to guide your thinking.

Side view:



Top view:



Remember, you will need to actually measure angles, lengths, etc.

