Construction

You can construct geometric figures with given conditions. You can draw such figures freehand, using a ruler and a protractor, or using technology.

For example, suppose you were given the following conditions:

- The figure has 4 sides, each 4 cm in length.
- The figure has 4 angles, each measuring 90°.

Based on these conditions, you can determine the type of figure. The resulting figure will be a square, because it has four equal sides and four equal angles.

To draw this square with a ruler and a protractor, follow these steps:

1. Draw one side of the square using the ruler.



2. Use the protractor to construct a right angle, using the endpoints of the side of the square as vertices.



3. Use the ruler to mark a point on each of the vertical rays at exactly 4 cm.



4. Draw a line segment between the two points to complete the square.



Constructing Triangles

Similarly, you can construct triangles with given conditions.

Suppose you are given the following conditions:

Side lengths: 2 cm and 3 cm

Angle measure: the angle measure between the 2 cm side and the 3 cm side is 60°.

First, consider the information and see if you can determine what type of triangle you will be drawing. Two of the sides have different lengths. This means that the triangle could be either scalene or equilateral.

To draw this triangle using a ruler and a protractor, follow these steps:

1. Draw one side of the triangle using the ruler.



2. Use the protractor to construct a 60° angle.



3. Use the ruler to mark a point on the new ray at exactly 3 cm.



4. Join the point with the end of the first line segment you drew. You have completed a scalene triangle.

