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Coordinating Seminar
Technology Lesson

GeoGebra And Constructions

Geogebra is a free online website where anyone can create constriction, graph equations, solve equations, analyze data, and explore 3D math.

**Creating an Equilateral Triangle Using Geogebra**
1. Open a new geogebra file. Right click anywhere on the on the graph and make sure 'axes' and 'grid' are checked off. This will make it easier to graph our construction. Your screen should look like this:
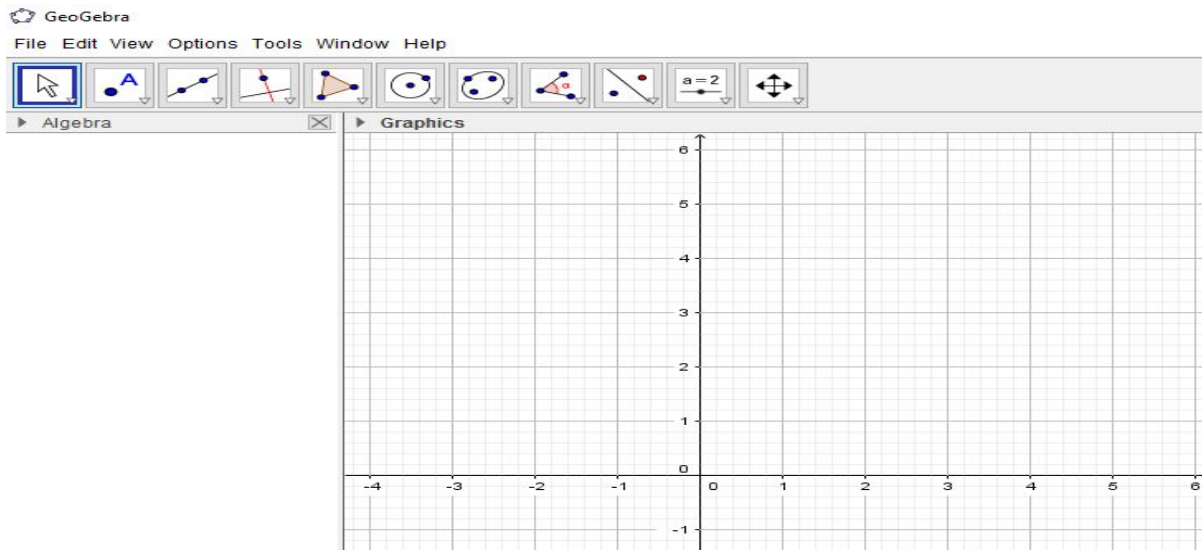

2. Next you will click on the lines tab (third box from the left) on the top of your page. Then you will click on segment and start at point A at (0,0) and then drag it to point B at (0,5).
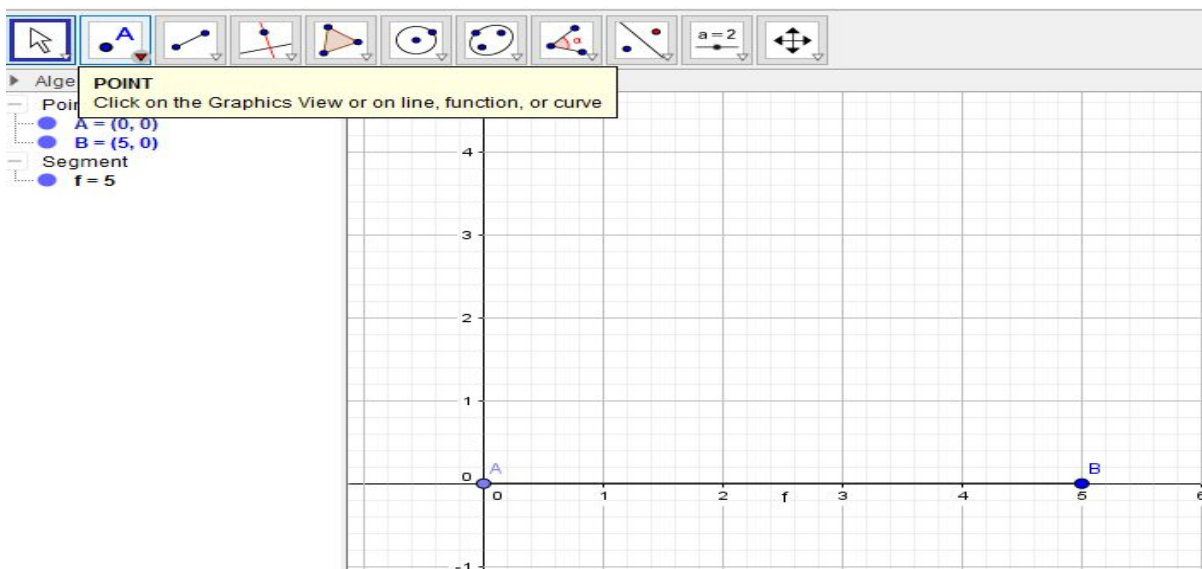
3. From there you will click on the circle tab (sixth box from the left) and click the option that says "Circle with a center through a point.' From there you will click on point A and then drag it out to point B, where point A is the center of the circle.
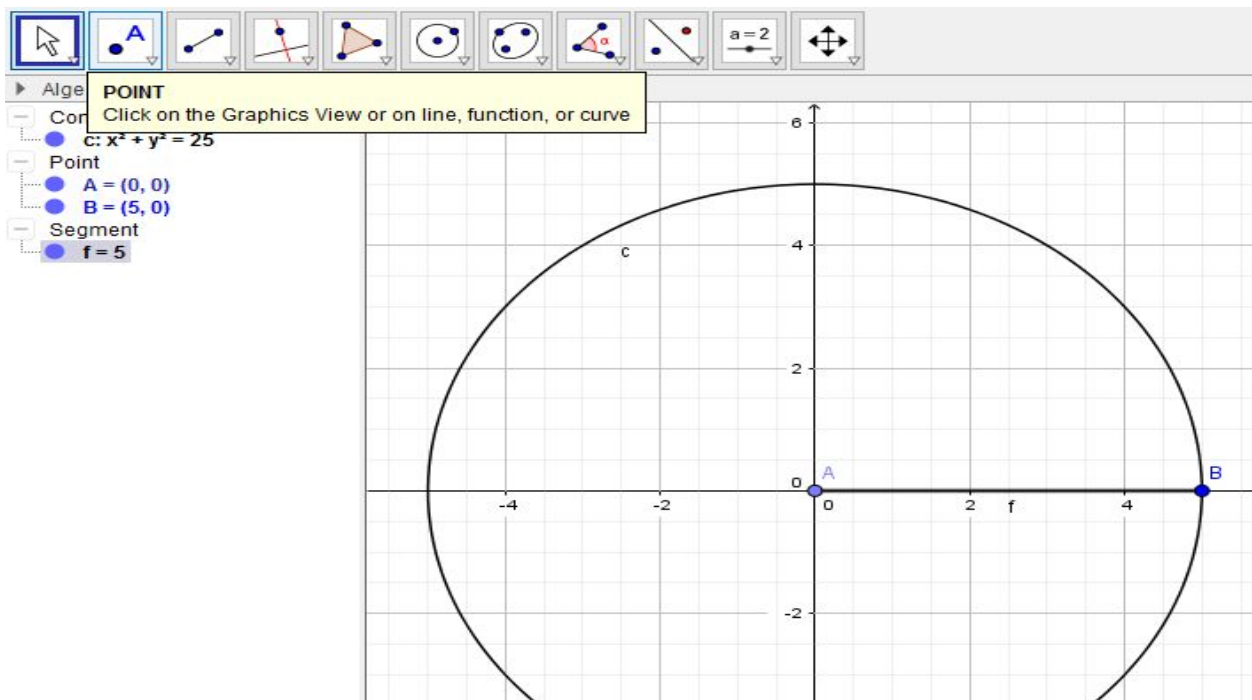

4. Next you click on the same option, 'circle with center through a point' but at point B now, dragging it out to point A, where point B is the center of the circle.
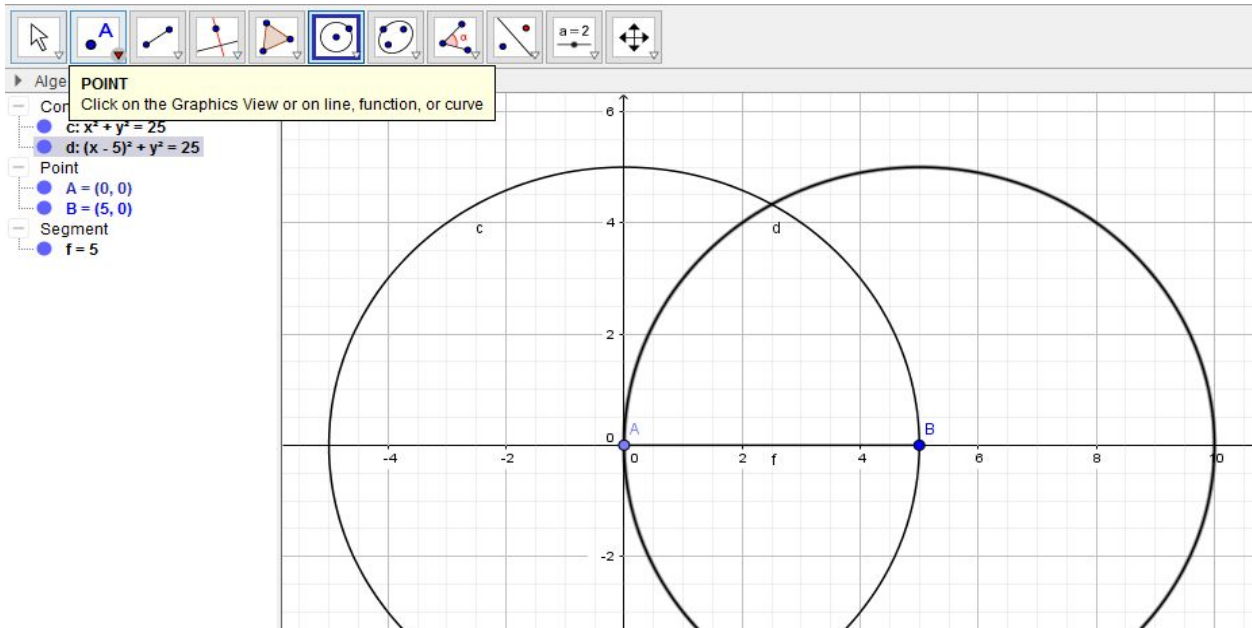
5. Now the two circles you just created should be intersecting one another. Where the two circles meet at the top of the intersection, you will now create point C. From point C you will create two new line segments. One going from point A to point C and from point B to point C.
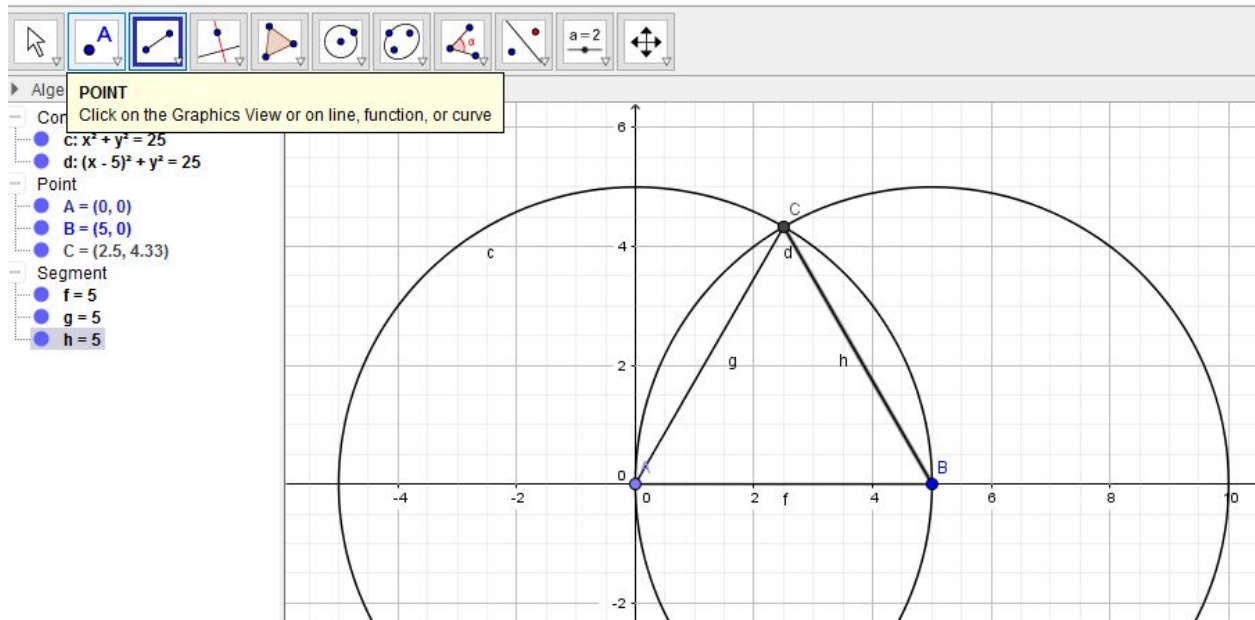

6. You now have just created a perfect equilateral triangle using constructions. We know this is an equilateral triangle because radii from the same circles are congruent. To clean up the construction a bit, we can now unclick certain points to just see the triangle alone. We will do this by unclicking the two circles we just created.
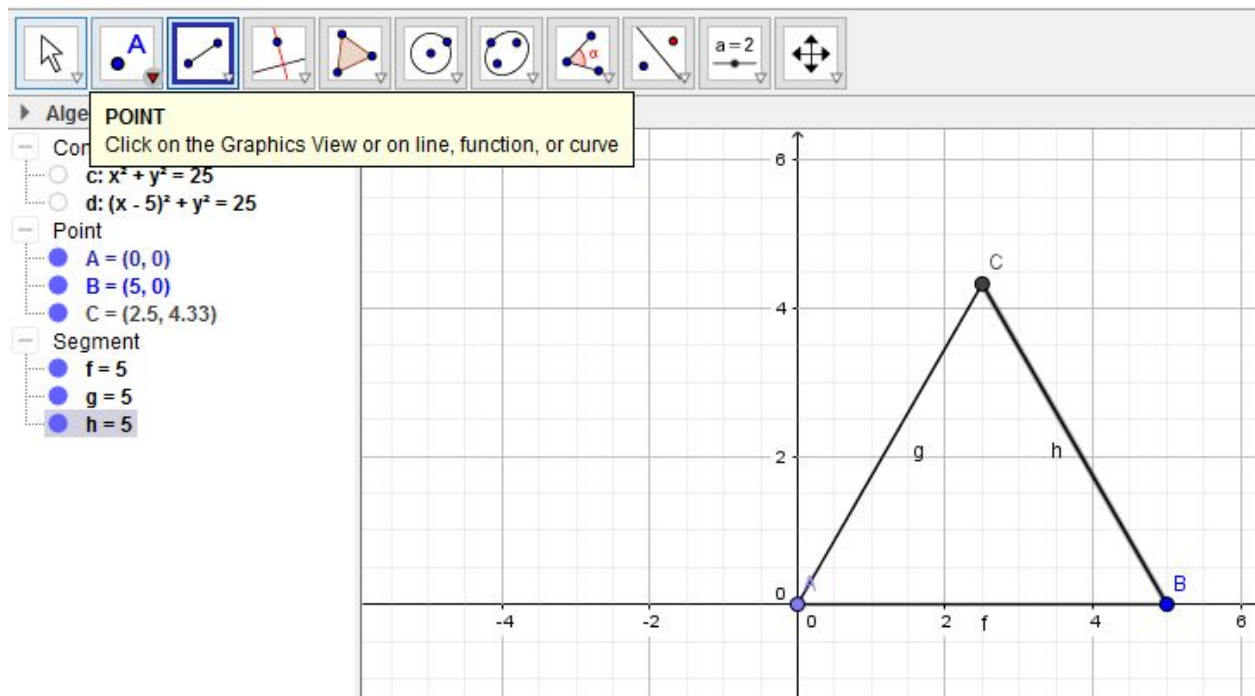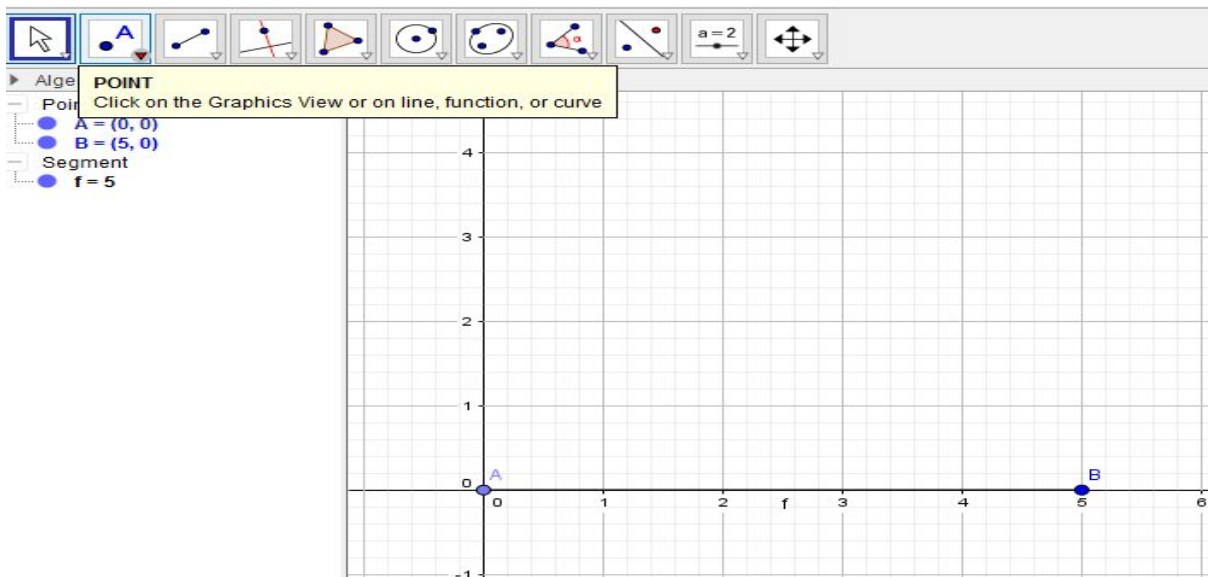
**Creating an Isosceles Triangle using Geogebra**

1. Create a new geogebra file. Right click again anywhere on the graph and check if 'axes' and 'grid' are checked off.
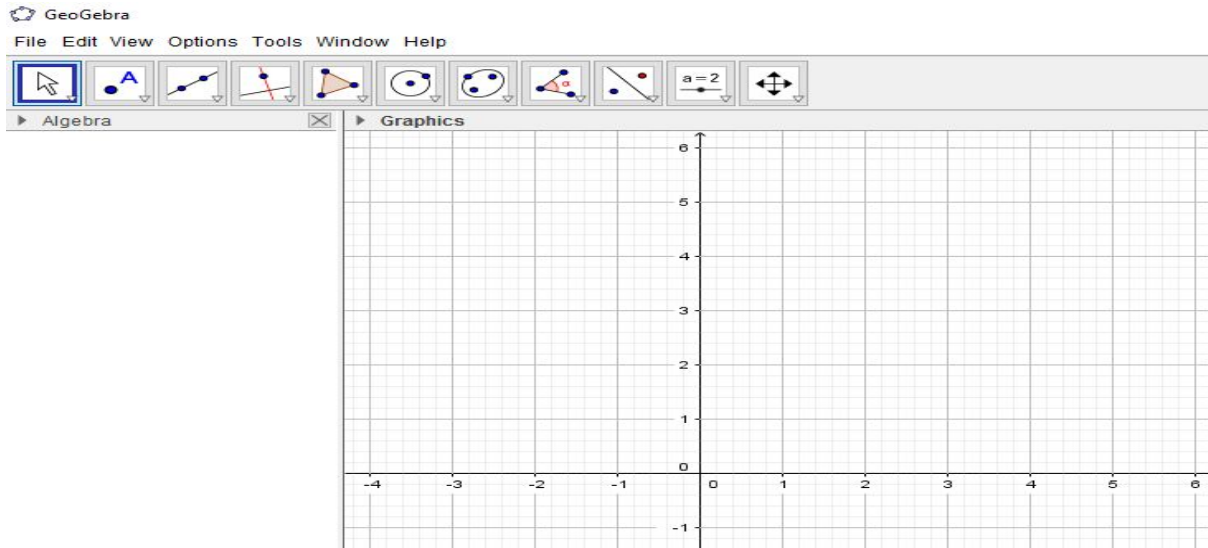

2. Now create a line segment, from point A at (0,0) and point B (0,5). This is going to be one of the sides of the triangle.

3. From there we are going to click on the option 'circle-center through a point', on point A. Drag the circle out across the segment a little more than half way.
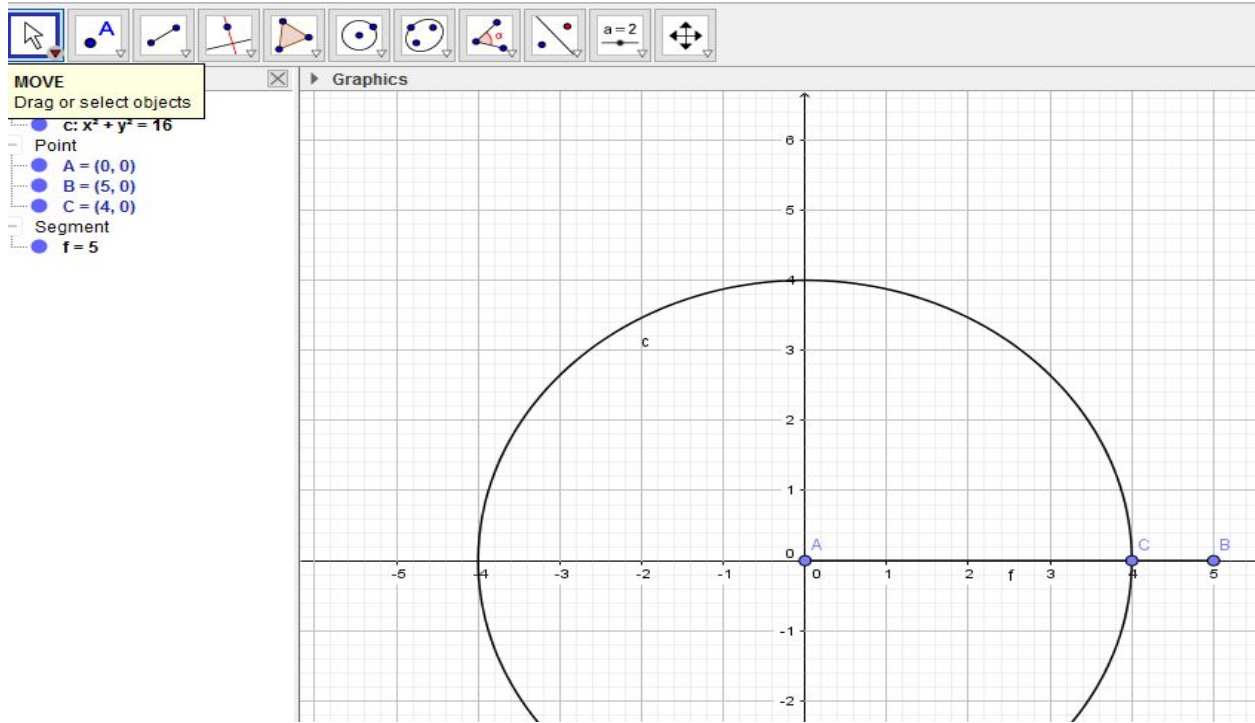

4. Then we are going to click on the circle tool again, but click on 'compass'. This copies the circle we just created. Once we click on compass and click on circle C, we are going to click on point B so the same exact circle was just created at point B.
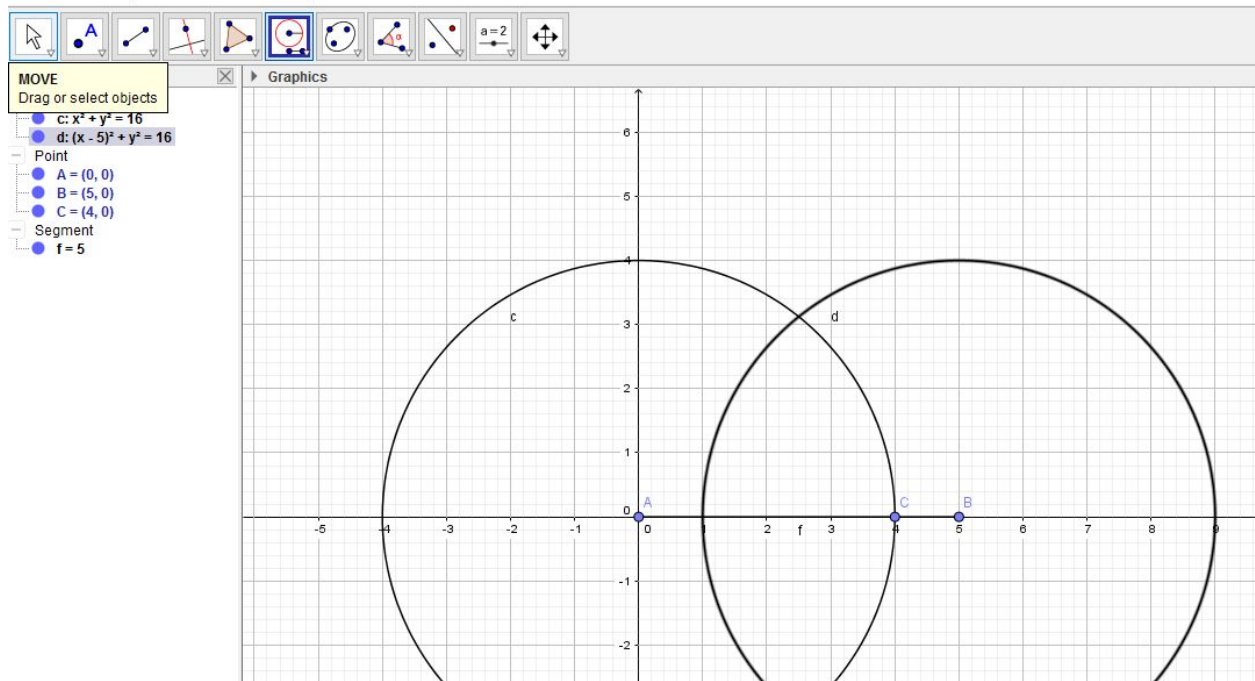
5. Now select the new point tool in the toolbar and make a new point at the top of the intersection of the two circles and call it point D. Then you are going to make two segments. One from point A to point D and then from point B to point D.
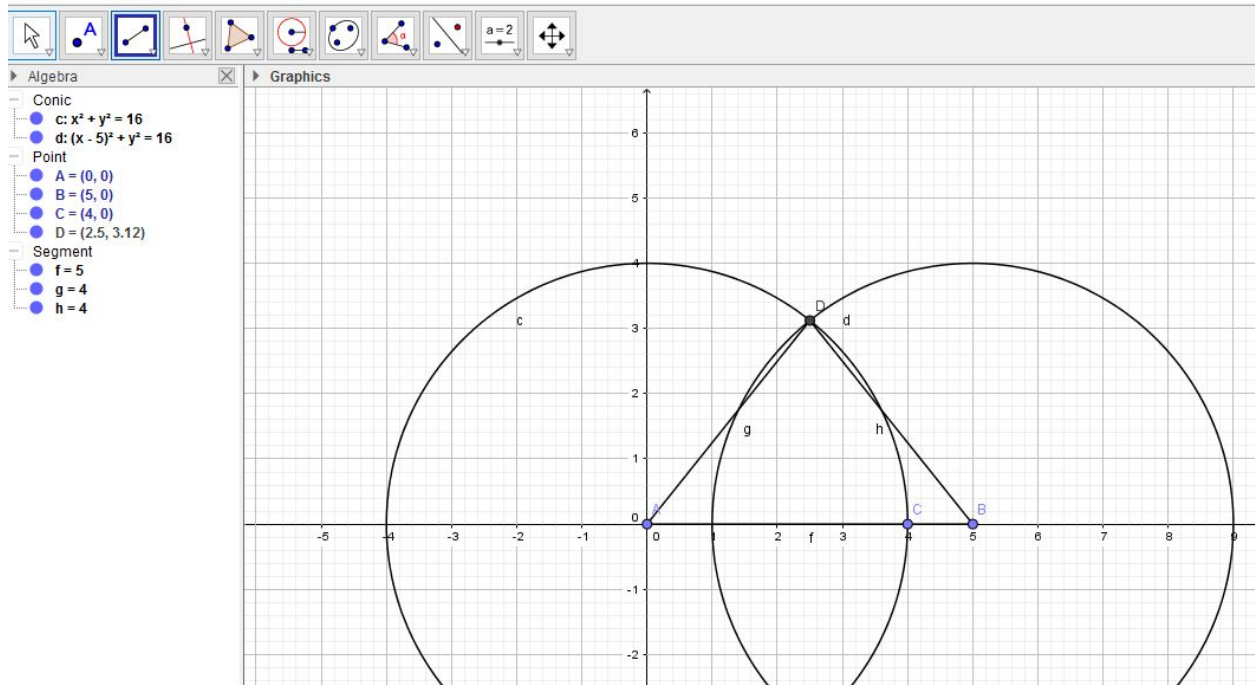
6. You have now just created an isosceles triangle because segments AC and CB are congruent due to that their radii of congruent circles. To clean up the construction a bit , we can now unclick certain points to just see the triangle alone. We will do this by unclicking the two circles we just created.
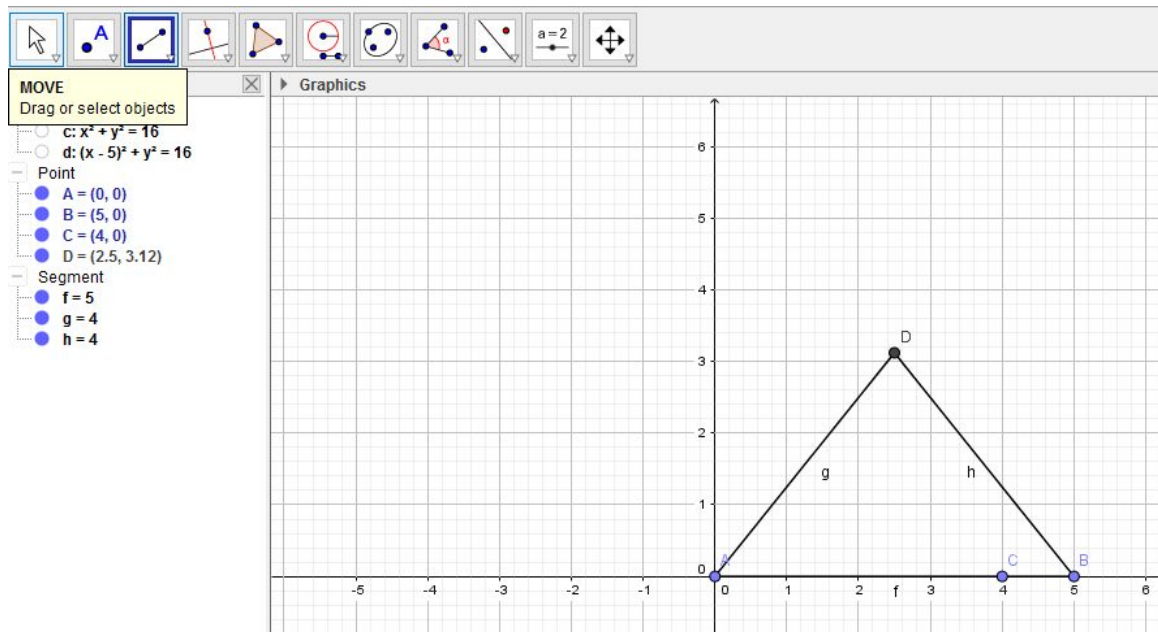
Review Questions:

What does it mean to have an equilateral triangle? Will the triangle still be equilateral after moving the construction around on geogebra?

What does it mean to have an isosceles triangle? Will the triangle still be isosceles after moving the construction around on geogebra?

What can you use these triangles we just made for another lesson?