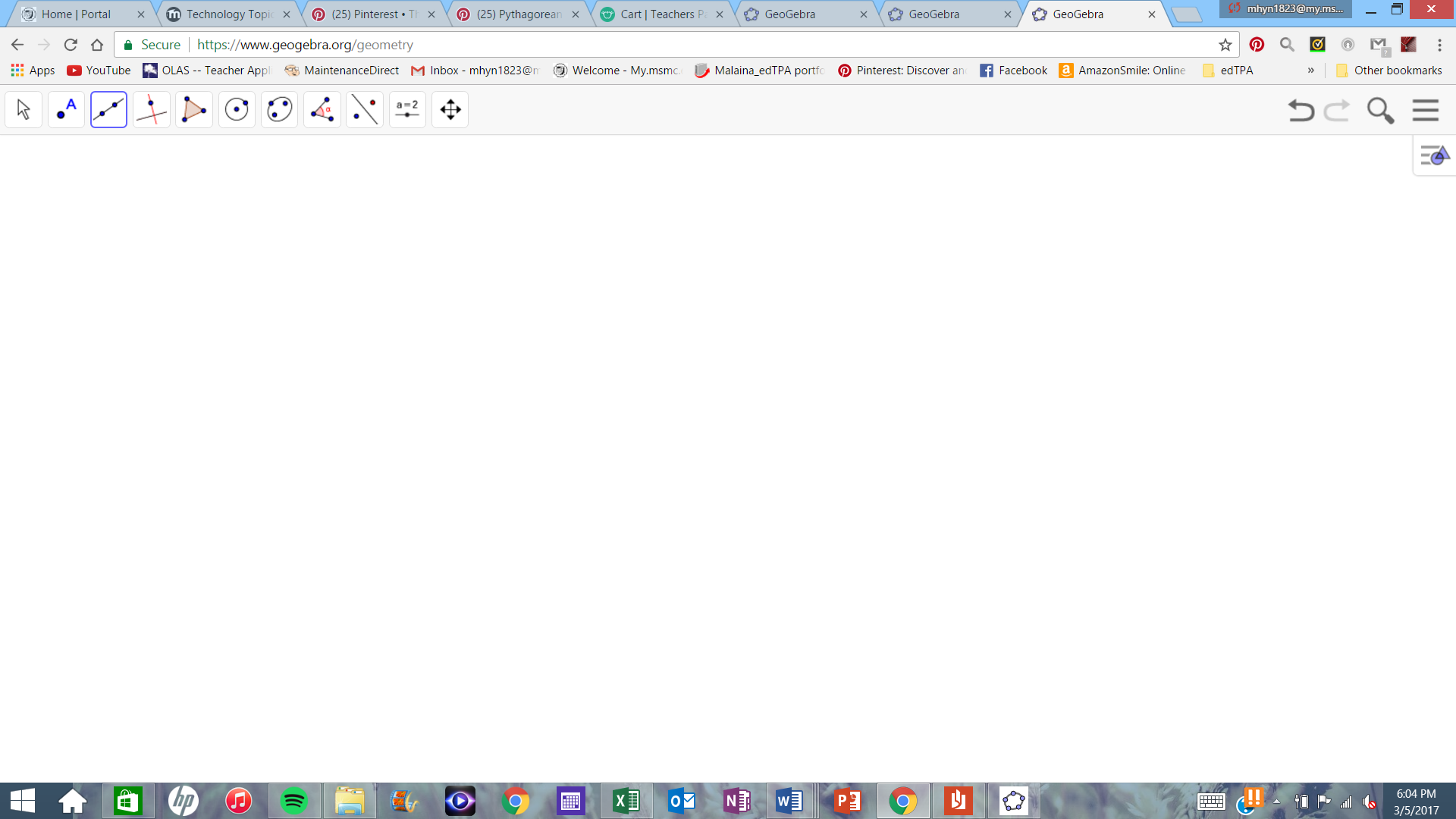
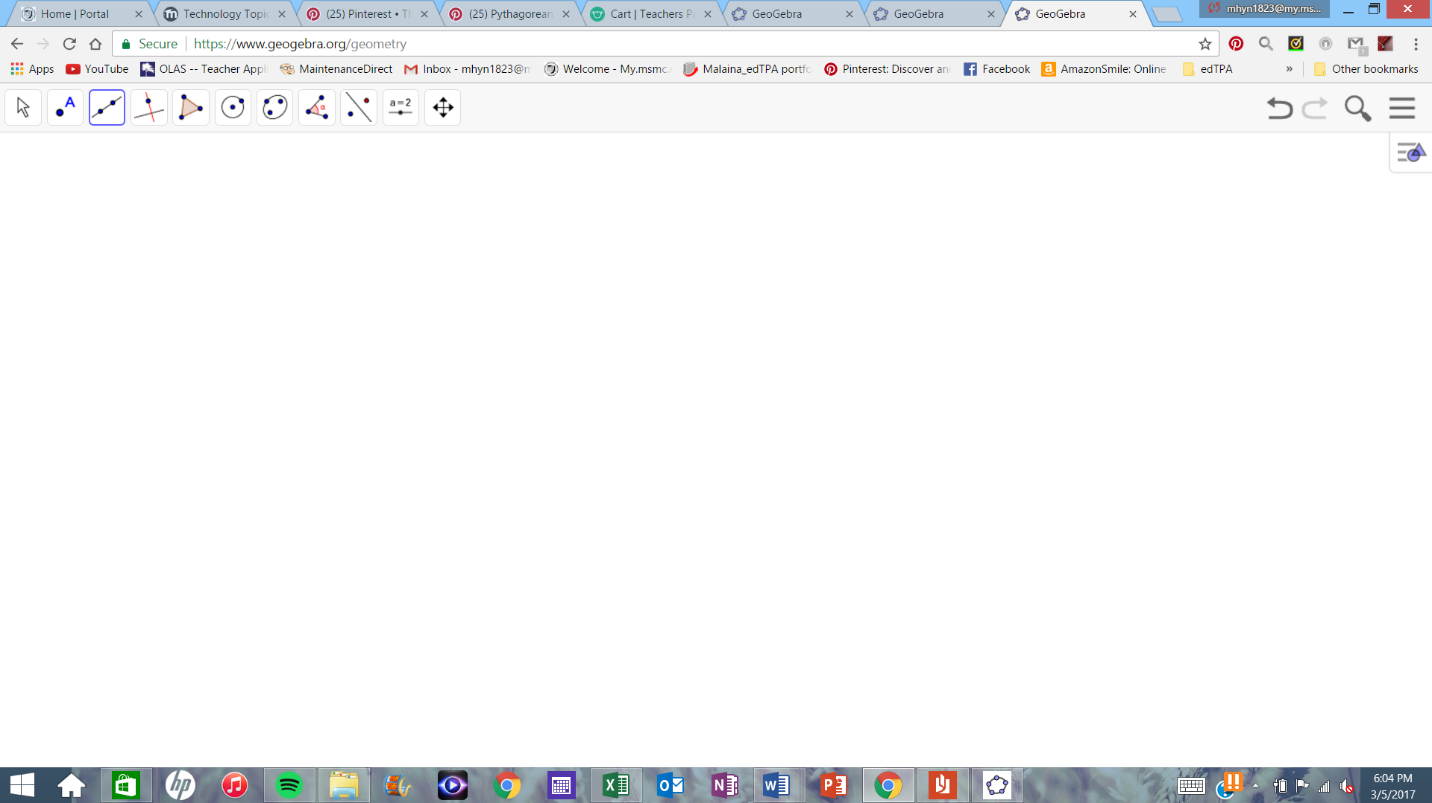
**Exploring Pythagoras Theorem using GeoGebra**

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**Key:**

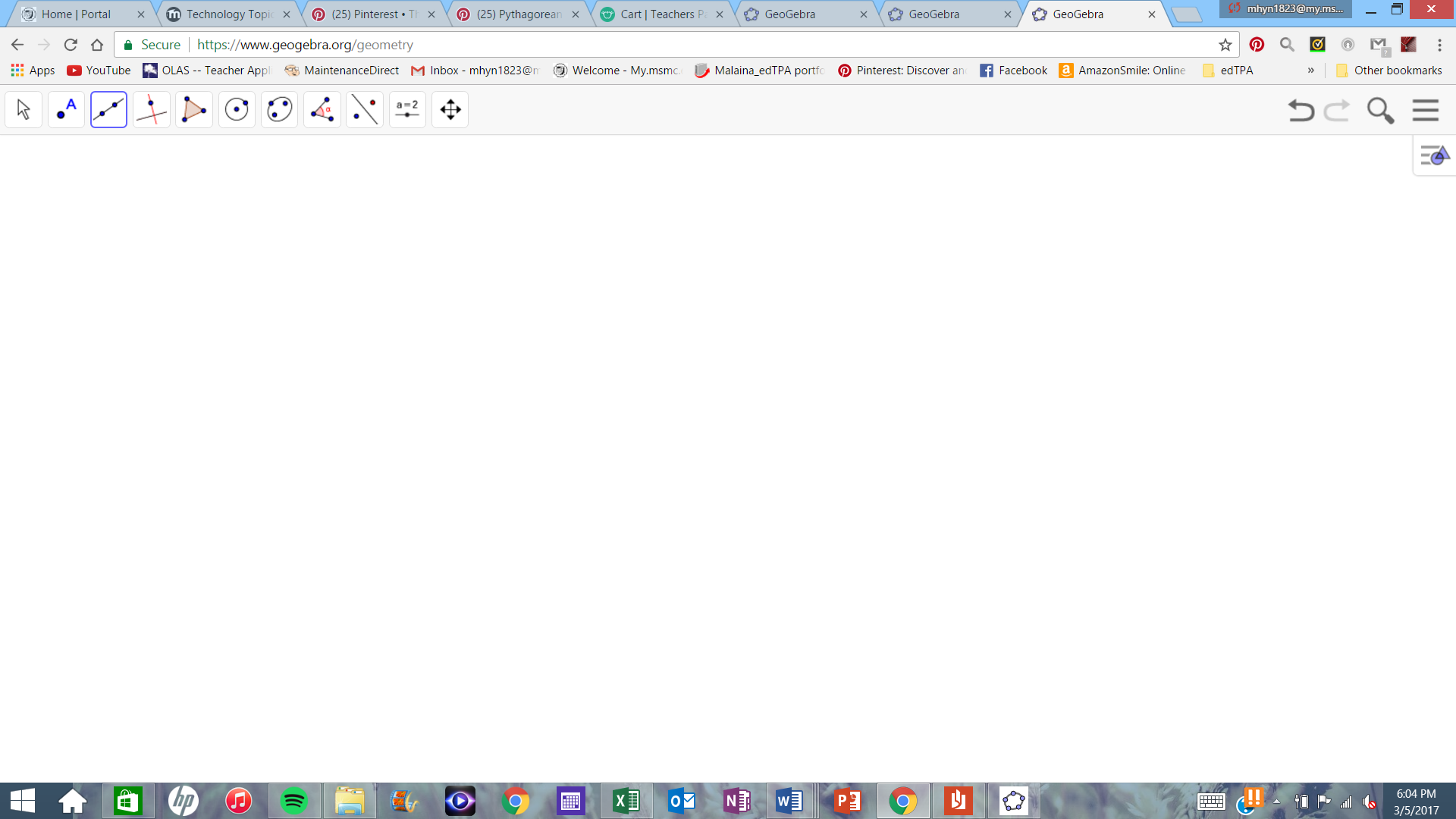
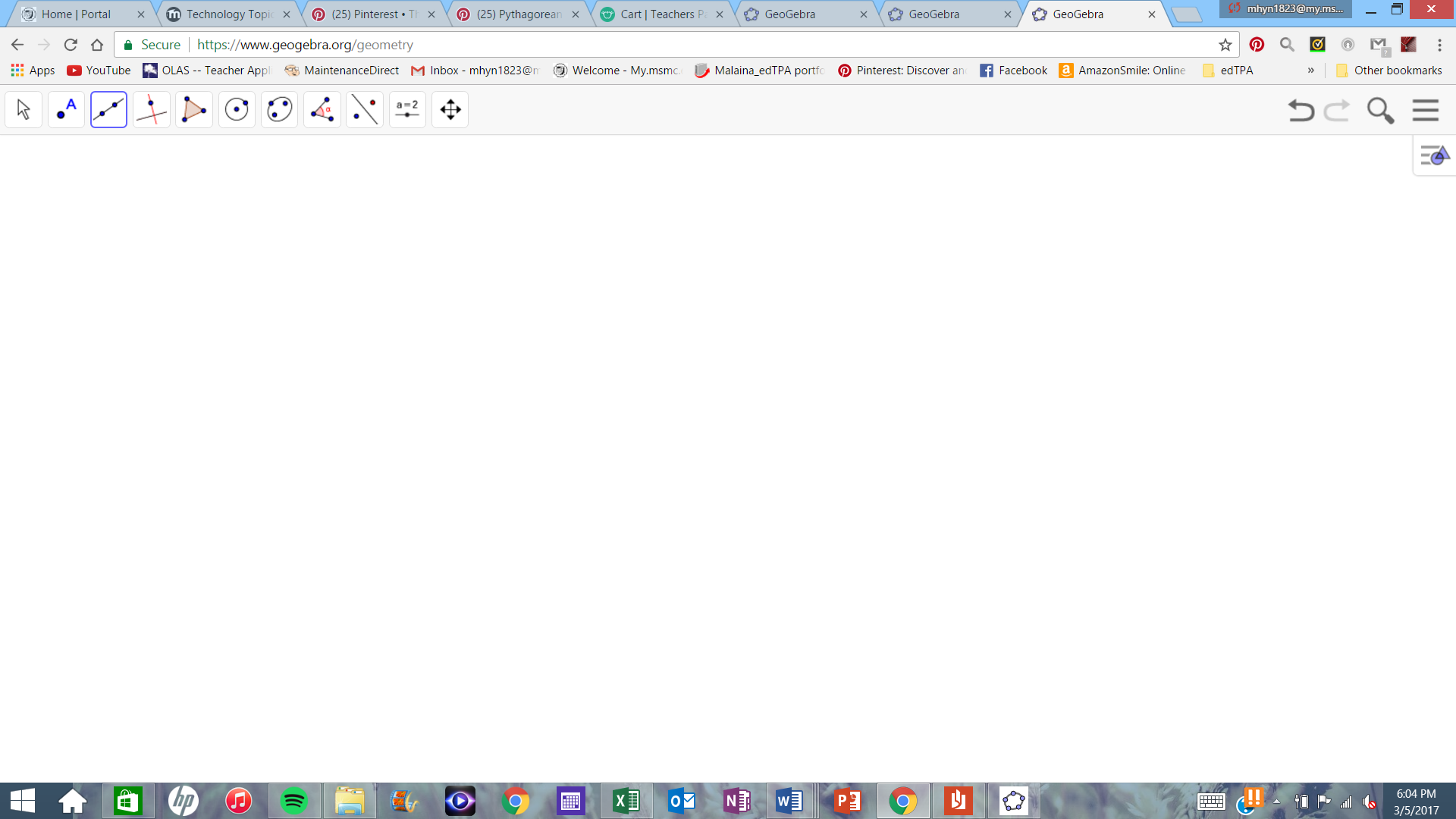
= Move Graphics Tool

= Polygon Tool

= Point Tool

= Line Tool

= Move Tool

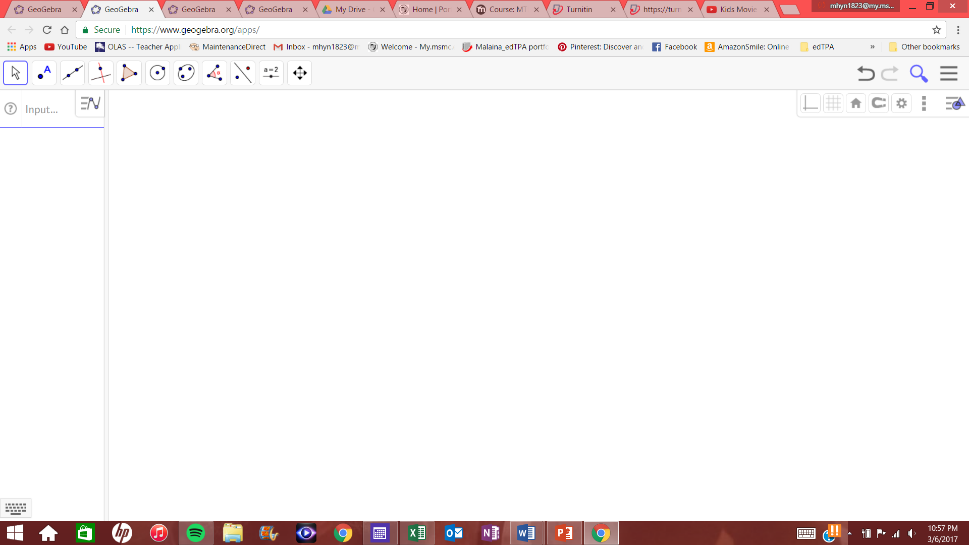


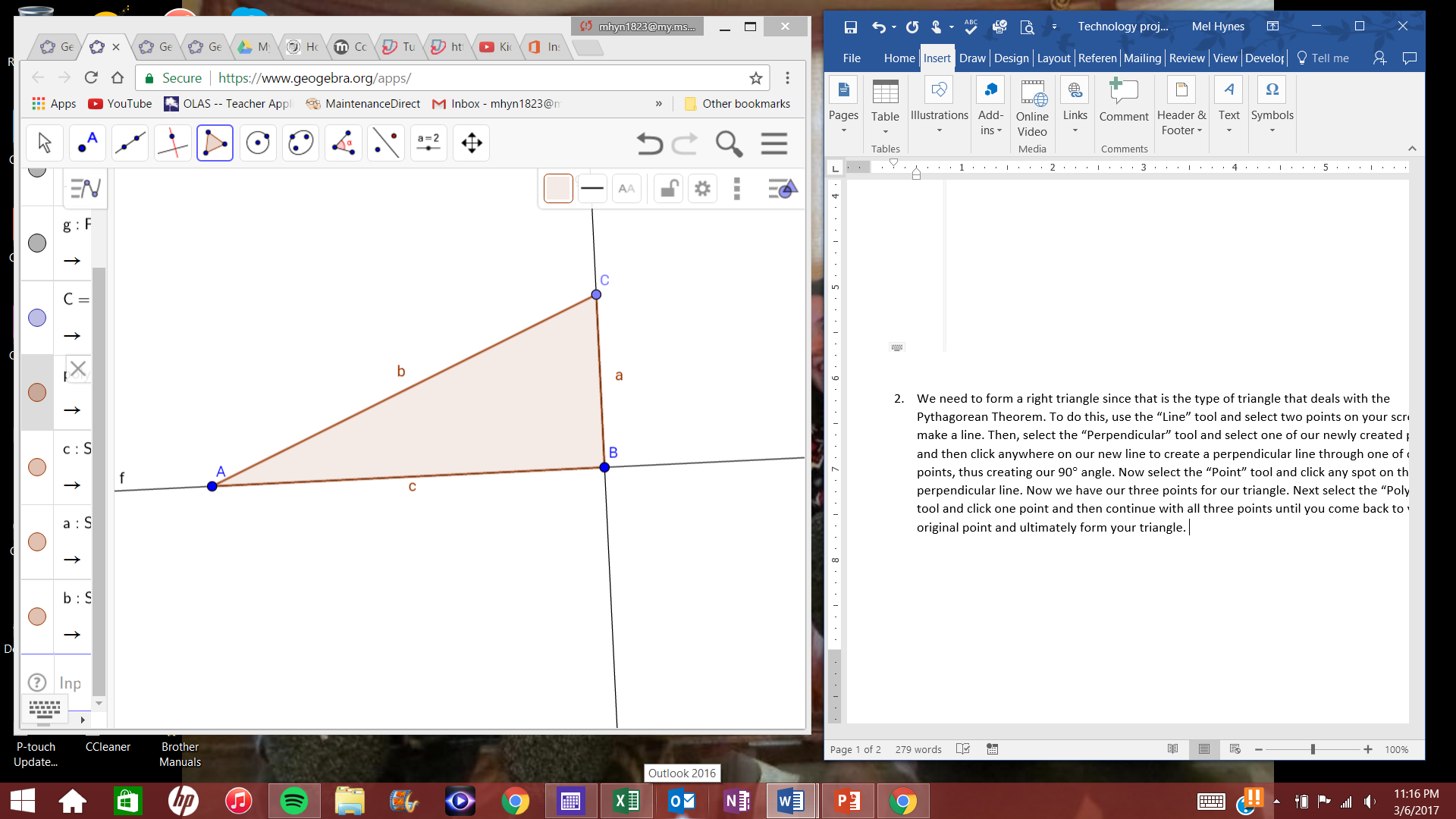
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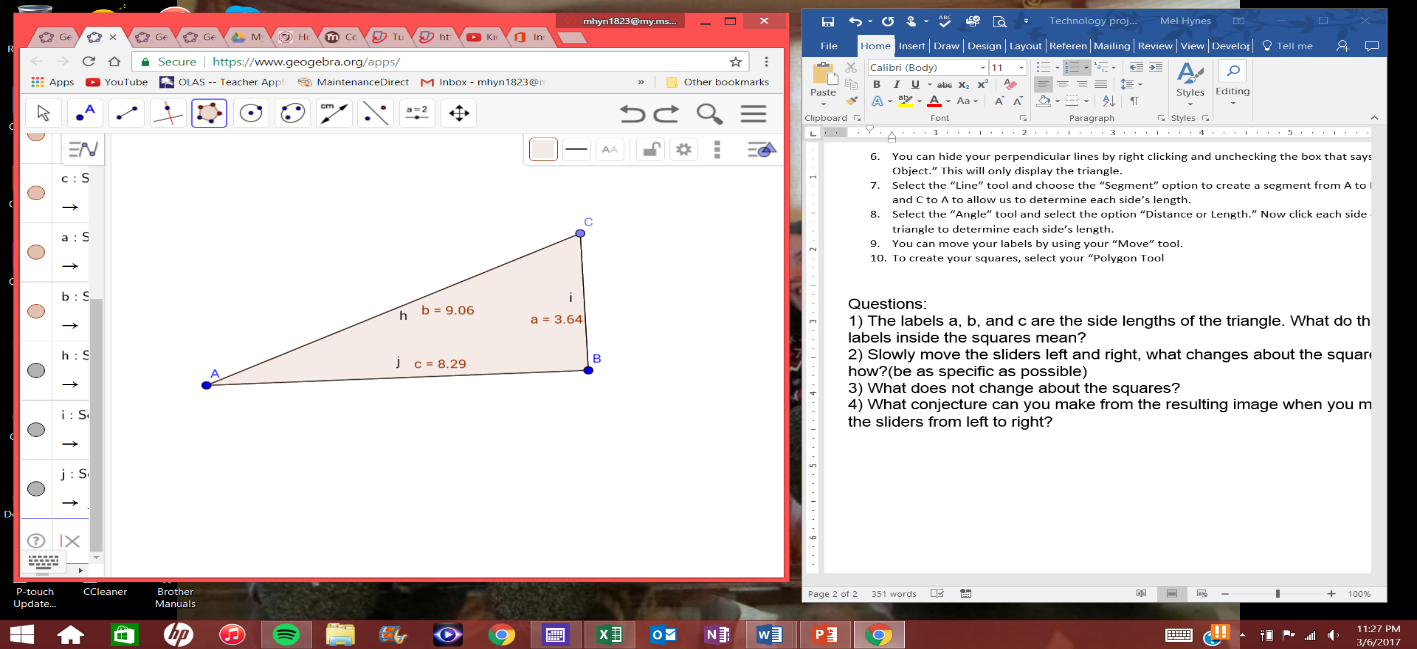
= Angle Tool

= Perpendicular Tool

1. Open GeoGebra (geogebra.org) and start GeoGebra. Click on the submenu button that is placed under the menu button (This has 3 lines). Select the axes option and the grid option so that you now have a clean slate to work on. Next, we need to form our triangle.



1. Use the “Line” tool and select two points on your screen to make a line.
2. Select the “Perpendicular” tool and select one of our newly created points and then click anywhere on our new line to create a perpendicular line through one of our points, thus creating a 90° angle.
3. Select the “Point” tool and click any spot on the new perpendicular line. Now we have our three points for our triangle.
4. Select the “Polygon” tool and click one point and then continue with all three points until you come back to your original point and ultimately form your triangle.
5. You can hide your perpendicular lines by right clicking and unchecking the box that says “Show Object.” This will only display the triangle.
6. Select the “Line” tool and choose the “Segment” option to create a segment from A to B, B to C, and C to A to allow us to determine each side’s length.
7. Select the “Angle” tool and select the option “Distance or Length.” Now click each side of the triangle to determine each side’s length.
8. You can move your labels by using your “Move” tool.



1. To create your squares, select your “Polygon” Tool and the option “Regular Polygon”. Now, select each segment’s endpoints to create that side’s corresponding square. Repeat this for all three sides. Be sure that each polygon has 4 vertices because squares have 4 vertices.
2. Use your “Angle” tool and select the option “Area” then click in each square to determine its area.

Now that you have all the information needed, complete the following:

1. How does the area of the square that corresponds to the hypotenuse relate to the other two squares that correspond to the other two sides of the triangle?
2. What would change if this was not a right triangle?
3. Using the triangle you created, prove Pythagorean Theorem.
4. If the length of the legs of a right triangle are 7 feet and 24 feet, what is the length in feet of the hypotenuse?
5. Using the “Move” tool, adjust the length of one of your sides. What will change about the squares?