

NAZARETH

REGIONAL HIGH SCHOOL



Geometry Summer Assignment

Due September 9, 2019

Dear Student:

Welcome to Geometry! Geometry is the study of the size, shape and position of 2-dimensional shapes and 3-dimensional figures. However, geometry is used daily by almost everyone. In geometry, one explores spatial sense and geometric reasoning. Geometry is found everywhere: in art, architecture, engineering, robotics, land surveys, astronomy, sculptures, space, nature, sports, machines, cars and much more.

In an effort to get the year off to a great start, you will need to complete the assignment below. Have fun with the assignment, use YouTube, the internet and the world around you as your guide.

Directions: Create a BOOKLET where each page is at least 5 x 7 and no larger than 8 ½ x 11 (a regular size sheet of paper). Within the booklet, you are clearly showing what you know about each term. Please define each term and show an illustration of each where possible. Tell as much as you can about each! (Use a straightedge and label and important details.) Neatness and creativity count! Include numbers as labels to help to clarify definitions. You may include 1 or two per page. Do not crowd pages with 4 or more objects. Group the terms in ways that make sense to you (by shared traits). Each of the 5 tasks is worth 10 pts for a total of 50 points.

- 1) Illustrate and explain the differences in types of polygons: triangle, quadrilateral, pentagon, hexagon, heptagon, octagon, nonagon, decagon, dodecagon; What is a regular polygon?
- 2) Illustrate and explain how to categorize triangles by their sides and their angles: Isosceles, equilateral, scalene, obtuse, acute, right; What is another name for a regular triangle?
- 3) Illustrate and explain the different relationships between pairs of lines: parallel, intersecting, perpendicular, skew; Which ones lie in the same plane?
- 4) Illustrate and define the different parts of a circle: the center, the radius, diameter, chord, arc, central angle; Find any theorem about a triangle inscribed in a semi-circle.
- 5) Illustrate which angles must be congruent when 2 parallel lines are crossed by a third line (called a transversal): Define and show corresponding angles, Alternate interior angles, Alternate exterior angles (Use different pictures to show each type. Do not put them all on the same picture.) What must be true about 2 angles on the same side of the transversal line if they are both interior?
- 6) ** optional bonus term – Cavalieri's Principle - Illustrate the principle with pictures and explain what the rule means in your own words.

Part II – Be prepared to tell about these words when you arrive to school that first week! You will have a quiz on these vocabulary terms during the first few days of class. As you create the booklet, study the terms and be sure to KNOW the vocabulary. The project (50) and quiz (20) combined will be 70 points.

P.S. Just a reminder --- you will need a COMPASS, and a 6-inch ruler for class, as well as a calculator. These items are VERY important. I strongly suggest a TI-80 series or a TI-30 series calculator. Casio is more difficult to use. Please have these items for September.

Questions? Email: gallison@nazarethrhs.org