Geometry Common Core Regents Exam August 2018

Exam: Begins on page 10 in your booklet or you can download it:
https://www.nysedregents.org/geometryre/818/geom82018-examw.pdf

Complete the following questions: 1, 4, 6-9, 11-13, 15-17, 26, and 28

Please attempt to do the questions BEFORE looking at the hints below. If you're still unable to complete the question after reading the hints, look at the video answer key: https://www.youtube.com/watch?v=O_X_xb2rG5U

After watching the video answer key, you should attempt to do the question YOURSELF before moving on. Keep a list of questions you are unable to complete. Feel free to email me for further assistance.

Hints:

#1 - If two parallel lines are cut by a transversal, the alternate interior angles are congruent.

#4 - Any rotation of 60 degrees $(360° \div 6)$ will map a regular hexagon onto itself.

#6 – Identify the sides of the triangle with respect to the given angle (opposite, adjacent, hypotenuse), select the appropriate trig ratio (SOH CAH TOA) and solve for the missing value.

#7 - Use the mean proportional altitude theorem to solve (the length of the altitude is the geometric mean between the lengths of the two segments making up the hypotenuse). To find the geometric mean of two numbers, you take the square root of the product of the two. In this question it might be easier to write your equation as the altitude squared equal to the product of the two segments of the hypotenuse.

#8 – All four sides of a rhombus have the same length. Use the distance formula to find the length of one side of the rhombus, then find the perimeter by multiplying that length by 4.

$$distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y)^2} \quad \text{or} \quad distance = \sqrt{\Delta x^2 + \Delta y^2}$$

#9 – Because the triangles are similar, the corresponding angles are congruent. Find the angle is ΔAHR that corresponds to angle *y.* Then use an inverse trig function to find its measure.

#11 - The slopes of perpendicular lines are negative reciprocals of each other. Find the slope of the given line, then determine which choice has a slope that's the negative reciprocal of that value. You will need to put some of the equations in slope-intercept form in order to determine the slope. $y = mx + b$

#12 – Let $DB = x$ and $EB = x + 3$. The side-splitter theorem tells us we have two similar triangles. Set up the appropriate proportion and solve for *x.*

#13 - If both pairs of opposite sides of a quadrilateral are congruent and parallel, we have a parallelogram. Think about the properties of parallelograms when answering this question.

#15 – To partition a line segment , use graph paper. Find the horizontal change between the segment endpoints and divide it by the number of parts needed (since the ratio is 3:2, you'll need to divide by 5). Then identify the point on the line dividing the segment into 3 parts and 2 parts.

#16 – Side-Splitter theorem tells us we have similar triangles. You're given ratios rather than actual values. Since the ratio of *AD:DB* = 3:5, Let *AD* = 3 and *DB* = 5. Ignore the value given for *DB* (6.3) when setting up your proportion.

#26 – Some properties and definitions useful for this question: opposite angles of parallelograms are congruent, consecutive angles of a parallelogram are supplementary, and an angle bisector divides an angle into two congruent angles.

#28 - Determine if the orientation has been preserved. If not, then you know one of the transformations must have been a reflection. Remember, *A* must map onto *A''*, *B* must map onto *B''* and *C* must map onto *C''*