Sylvania SCHOOLS
An Expectation of Excellence

Summer 2016

Dear Students,

The class you are scheduled for next year is Honors Geometry. To give you the best chance for success in Honors Geometry, some preparation work is being recommended. Please watch the suggested videos (should you experience any difficulty) and complete the provided problems. While the number of problems is not large, each set has been chosen because of the importance of the required skills in the coming year. While no two courses are exactly alike, Geometry is unique among required mathematics courses—Algebra I success or struggle does not in any way guarantee the same experience in Geometry. Geometry can be learned by anyone, but it requires regular work and that work begins with this summer assignment.

This assignment covers some of the basics of the first few chapters. While some specifics from those chapters will still be covered in class, material from this packet will be covered rapidly, if at all, as it is prerequisite material. Please use separate paper in completing the packet. In doing so, please make sure your work is labeled clearly so that it is easy to follow, both for yourself and for your teacher. Along with other early work in the course, this will be used to help confirm that you have been appropriately placed for your math course in the fall.

****Expect a minimum of 2 hours to complete all problems. (This *does not* include time to review, watch videos, ask questions, etc.)****

If you have any questions, you may e-mail:
Mrs. Tusing if you plan on attending Southview in the fall at mtusing@sylvaniaschools.org
Mr. Christy if you plan on attending Northview in the fall at gchristy@sylvaniaschools.org

Thank you,
The Northview and Southview Honors Geometry Teachers

SUMMER ASSIGNMENTS FOUND UNDER THE "FOR STUDENTS" TAB AT:
www.sylvanianorthview.org

Name: _____

H.Geometry: Summer Work

Please complete the following problems in order to prepare for the start of the year in Geometry. All work must be done on a separate sheet of paper. This will be due the first week of school.

Vocabulary—Complete each of statements with the correct term.

1. Figures that are in the same plane are _____.
2. A(n) _____ is the part of a line consisting of two endpoints and all points between them.
3. Two segments with the same length are _____.
4. A(n) _____ of a segment is a point that divides the segment into two congruent segments.
5. A(n) _____ is a ray that divides an angle into two congruent angles.
6. _____ are coplanar lines that do not intersect.
7. A(n) _____ is an angle whose measure is exactly 90°.
8. _____ lines intersect to form right angles.
9. _____ angles have measures that add to 90° while _____ angles have measures that add to 180°.
10. Two _____ angles are nonadjacent angles formed by intersecting lines.
11. The sum of the interior angles of any triangle is _____ degrees.
12. Isosceles triangles have at least _____ congruent sides and _____ congruent angles while scalene triangles have _____ congruent sides and angles, and an equilateral triangles has _____ congruent sides and angles.
13. The linear equation $y-3=4(x+5)$ is written in _____ form.
14. From the _____ form of a linear equation, you can easily read the value of the slope and the value of the *y*-intercept.
15. The statement a = _____ is an example of the reflexive property.
16. If $a = b$ and $b = c$, then a = _____ is an example of the transitive property.

- Need assistance with the basic vocabulary of geometry? Check out: https://www.khanacademy.org/math/geometry/segments-and-angles and/or https://www.khanacademy.org/math/geometry/parallel-and-perpendicular-lines

Prerequisite Algebra Skills—Complete each of the following problems. Show *all work*, being careful to follow order of operations correctly.

Simplify the following expressions. Use 3.14 for π.

1. $2 \cdot 7.5 + 2 \cdot 11$
2. $\pi(5)^2$
3. $\sqrt{5^2 + 12^2}$

Evaluate the following expressions for $a = 4$ and $b = -2$.

4. $\frac{a+b}{2}$
5. $\frac{a-7}{3-b}$
6. $\sqrt{(7-a)^2 + (2-b)^2}$

- Need assistance with order of operations? Check out a bundle of resources at: https://www.khanacademy.org/math/arithmetic/multiplication-division/order_of_operations/v/introduction-to-order-of-operations

Solve each of the equations.

7. $2x + 7 = 13$
8. $5x - 12 = 2x + 6$
9. $2(x+3) - 1 = 7x$
10. $(10x + 5) + (6x - 1) = 180$
11. $(x + 21) + (2x + 9) = 90$
12. $2(x+4) = x + 13$
13. $3(x+8) = 12$
14. $7x + 5 = 5x + 17$
15. $14x = 2(5x + 14)$
16. $2(3x - 4) + 10 = 5(x + 4)$

- Need assistance on solving equations of all types? Check this out: https://www.khanacademy.org/math/algebra/solving-linear-equations-and-inequalities/absolute-value-equations/v/absolute-value-equations

Write an equation and solve the problem.

17. The sum of the measures of three angles is 180°. One measure is twice the size of each of the other two. Find the measure of each angle.

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19. The three angles of a triangle are 3 consecutive even integers. Find the measure of each of the three angles.

20. Two vertical angles have measures of $3x+11$ and $7x-5$. Find the measure of each of the angles.

21. Two complementary angles have measures of $2x+5$ and $3x-10$. Find the measure of each of the angles.

22. Two supplementary angles have measures of $3x+2$ and $2x-3$. Find the measure of each of the angles.

For 9-11, graph the equation or inequality. If your struggling, make a table of x & y values!

23. $3y = 2x - 9$ 24. $x = 2y - 4$ 25. $y = x + 1$

26. Write the equation then graph the line passing through (3, -2) that is perpendicular to the graph of $x = -3$.

27. Write an equation in slope-intercept form for the line that has a slope of -1 that passes through (-4, 3).

28. Write an equation for the line that passes through (2, -5) and is parallel to the line whose equation is $5x + 2y = 6$.

- Need assistance with slope-intercept form? Check out: https://www.khanacademy.org/math/algebra/linear-equations-and-inequalitie/equation-of-a-line/v/graphing-a-line-in-slope-intercept-form

For 29-30, solve each system of equations by graphing.

29. $\begin{aligned} x + y &= 5 \\ 2y &= x - 2 \end{aligned}$

30. $\begin{aligned} y &= \frac{2}{3}x - 1 \\ 2x + y &= -1 \end{aligned}$

For 31-32, solve each system of equations by using substitution.

31. $\begin{aligned} 4x - y &= 10 \\ y &= 3x - 6 \end{aligned}$

32. $\begin{aligned} x - y &= 6 \\ 3x + 2y &= -22 \end{aligned}$

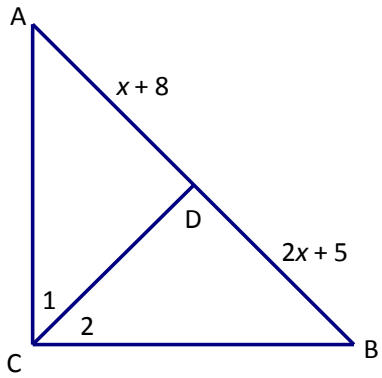
For 33-34, solve each system of equations by using elimination.

33. $\begin{aligned} 5x + 2y &= 1 \\ 2x + 3y &= 7 \end{aligned}$

34. $\begin{aligned} 5x - 3y &= 16 \\ 2x + 7y &= -10 \end{aligned}$

- Need assistance with systems of equations? Check out this awesome resource: https://www.khanacademy.org/math/geometry/segments-and-angles and/or https://www.khanacademy.org/math/geometry/parallel-and-perpendicular-lines

Basic Geometry Skills—Answer each of the following questions based on the figure shown below. Show any work. Be careful to use correct notation.



1. Name $\angle 1$ in two other ways.
2. Name the vertex of $\angle 2$.
3. If D is the midpoint of $\overline{AB}$, find x.
4. If $m\angle ADC$ and $m\angle BDC$ have a sum of 180°, name the straight angle.
5. If $\angle 1 \cong \angle 2$, name the bisector of $\angle ACB$.
6. If $m\angle 2 = 45°$ and $\angle ACB$ is a right angle, find $m\angle 1$.
7. If $\angle ACB$ is a right angle, $m\angle 1 = 4x$ and $m\angle 2 = 2x + 18$, find $m\angle 1$ and $m\angle 2$.

- Need assistance with the basics of geometry notation? Check out: https://www.khanacademy.org/math/algebra/systems-of-eq-and-ineq/fast-systems-of-equations/v/solving-linear-systems-by-graphing