

Spotswood High School

## Mathematics Department

**To:** All Students going into Honors Geometry  
**From:** The Honors Geometry Teachers  
**Re:** Summer Assignment 2017  
**Date:** June 2017

Welcome to the world of Honors Geometry. Attached you will find an assignment that reviews previously taught mathematical skills that are essential for you to be successful in this course. This is an *honors level* math course. To be successful, a student needs a strong mathematical background, excellent attendance, classroom and study habits, time and motivation to complete all daily work, and a commitment to make the most of this opportunity.

### 4 TIPS THAT VIRTUALLY ENSURE A SUCCESSFUL MATH EXPERIENCE...

- **Before, not after.** Preview the material prior to the ideas being discussed in class. Know what might be difficult...before you get to class.
- **Now, not then.** Don't wait until you're lost to get help. See me or a tutor right away.
- **All, not some.** You have to be a maniac about math homework. Do all the assigned problems...and more.
- **Sooner, not later.** No matter how well you understand things in class, waiting too long to practice the material can get yourself confused. Stay up to date with your work.

Mathematics is like sports. It is impossible to flawlessly perform a skill the first time you try it. Similarly, an exam is the worst time to attempt a specific type of problem for the first time. Both sports and math have necessary practice time, and by practicing well, superior performances are more likely. Exams can then be your showcases, or games, where you can show everyone how good you are.

### ADVANCED MATHEMATICS IS UNIQUE...

- It requires a discipline you don't get as part of everyday life
- If you fall behind, it can be difficult to catch up
- Class attendance is essential. It is tough to duplicate my class on your own.
- Reading is necessary. Vocabulary is a key component of the course.
- The goal is mastery of the material. The standard of success is not 'attendance', 'trying hard', 'having a good attitude', or 'doing the work'. Those are things all of you are expected to do. The result we want is learning, understanding, and mastering the material.

### **SUCCESS AND MASTERY DEPEND ON MANY FACTORS...**

- Years of previous effort, REAL learning, and memory of learned material
- Effort level
- Attitude
- Aptitude
- Classroom skills
- Homework skills
- Attendance
- Study skills
- Time management

### **HOMEWORK...**

- Is a tool for learning, practicing, growing. If you also get to score points...bonus!
- Gets done on time or not...either choice has consequences
- Gets done with quality or not...either choice comes with consequences
- Is a record of your effort, methods, and your solutions. A list of unsupported answers won't help you learn well and indicates a weak effort.
- Will help you to be successful in this class.

### **OUTSIDE THE CLASSROOM...**

- Co-curricular activities, sports, and/or jobs are great ways to learn many skills. Research shows that involvement in these activities leads to success later in life, BUT these are never excuses for sloppy academic performance. Set your priorities and get the job done...well.
- All opportunities come with responsibilities...live up to them

Graphing Calculators will be used extensively throughout this course and are a tremendous aid in understanding the material. I strongly recommend students purchase or borrow their own Texas Instrument 83/84 or higher Graphing Calculator. Owning one now is a worthy investment as it can be used throughout your high school career in both math and science courses. In addition, students should have their own rulers, protractors, and compass. I have seen sets of these at Staples, Michael's, A.C. Moore, etc. for <\$5. I have sets for in class, but students will need these for homework as well.

### **A FINAL NOTE...**

It takes hard work to be a serious student of serious mathematics. I offer my sincere appreciation for your efforts, thank you in advance for your work, and congratulations on your successes. You wouldn't be here right now if you haven't already been successful.

Good luck and have a happy and safe summer!

Sincerely,  
The Honors Geometry Teachers

NAME: \_\_\_\_\_

PERIOD: \_\_\_\_\_

**Instructions:** You are to complete each part of this assignment. **ALL WORK IS TO BE SHOWN IN ORDER TO RECEIVE CREDIT FOR THE PROBLEM.** The work is to be neat, organized, and easy to follow. This assignment is due the first day of school and will be graded. **LATE WORK WILL NOT BE ACCEPTED.** This assignment will represent the first grade of the year. You may use your notes from previous classes to help you solve these problems. All material covered in this packet is from previous courses, and as such, you are responsible for knowing this. Your prior mathematical knowledge recall is extremely important for your success in this course. We have a lot of material to cover and cannot spend time re-teaching, only reviewing things that you should know from your prior courses.

**Part I: Algebra Review**

1.  $x + 6 = 17$

2.  $2x = 14$

3.  $5x = 35$

4.  $3x + 5 = 20$

5.  $12x + 5 = 21$

6.  $4x - 3 = 2x + 9$

7.  $2(3x - 5) = 4x + 4$

8.  $\frac{1}{2}x + 8 = 16$

Write an equation and then solve your equation to find the number.

9. Three times the sum of a number and four is fifteen.

10. Five times a number minus two is the same as the sum of the number and six.

11. One-half of a number is equal to the number plus ten.

12. One-fourth of a number plus nine is twelve.

**Solve**

13.  $|x + 5| = 8$

**Solve the system of equations (You must use 2 different methods, but you can chose which method to use for each question.)**

14.  $5x + y = 16$   
 $4x - 3y = 9$

15.  $3x + 2y = 16$   
 $4x - 3y = 9$

16.  $y = -3x$   
 $x - 6y = 38$

$$\begin{aligned} 17. \quad & 2x + 3y = 4 \\ & -4x - 6y = -8 \end{aligned}$$

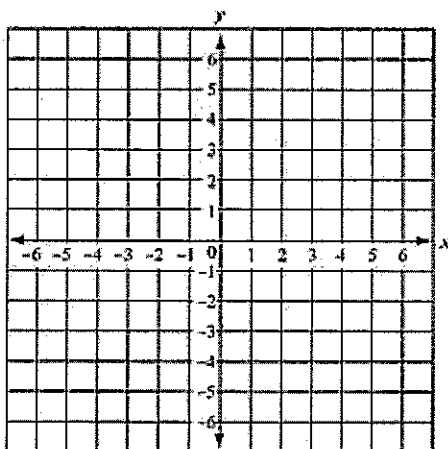
Solve the inequality.

$$18. \quad 3x + 7 < -2$$

$$19. \quad -4x \leq 8$$

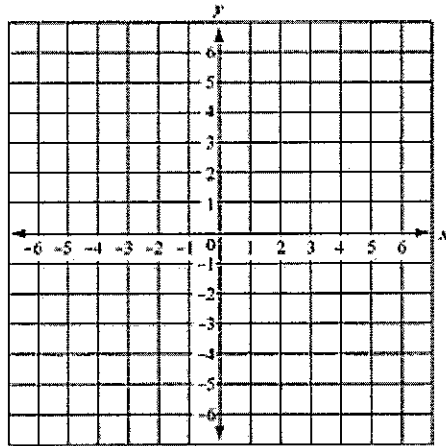
$$20. \quad 90 < 3x + 6 \leq 180$$

Find the slope of the line passing through each set of points. Write the equation of the line in both point-slope form and slope-intercept form. Then graph the line.

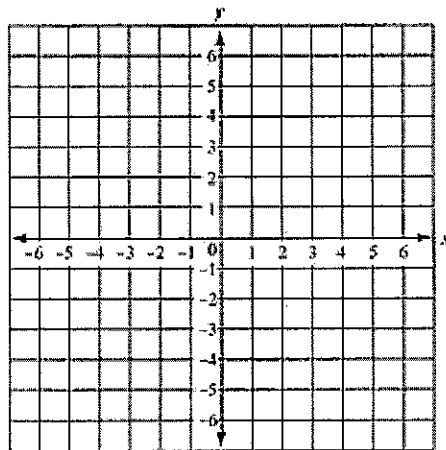


$$21. \quad (2,5), (4,6)$$

22.  $(2, -4), (5, -4)$



23.  $(6,1), (6,-5)$



24. Find the slope of the line parallel to the line in problem #21.

25. Find the slope of the line perpendicular to the line formed by (-3, -2) and (-5, -8)

**Solve by factoring**

26.  $x^2 - 2x - 8 = 0$

27.  $x^2 - 3x = 0$

28.  $x^2 - 25 = 0$

29.  $x^2 + 8x + 15 = 0$

30.  $x^2 - 6x + 9$

**Simplify each radical. Do not write your answer as a decimal.**

31.  $\sqrt{12}$

32.  $\sqrt{18}$

33.  $\sqrt{24}$

34.  $\sqrt{72}$

35.  $\sqrt{54}$

Solve the following equations involving radicals.

36.  $\sqrt{x-7} = 8$

37.  $5\sqrt{x} + 7\sqrt{x} = 36$

Simplify the following expressions

38.  $5 + 7\sqrt{2} + 8 - 3\sqrt{2} + 6\sqrt{5}$

39.  $\frac{4}{\sqrt{3}}$

Solve the following proportions. If necessary, leave answers in simplest radical form:

40.  $\frac{5}{10} = \frac{32}{x}$

41.  $\frac{12}{x} = \frac{x}{15}$

42.  $\frac{x+2}{6} = \frac{24}{x+2}$



Part II: Geometry Review

For each term give a definition in your own words and sketch a picture.

43. Point	44. Line	45. Line segment
46. Ray	47. Acute angle	48. Right angle
49. Obtuse angle	50. Straight angle	51. Complementary angles
52. Supplementary angles	53. Parallel lines	54. Perpendicular lines

Classify the following figures by their names

55. 4-sided polygon

56. 6-sided polygon

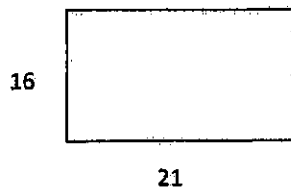
57. 7-sided polygon

58. 8-sided polygon

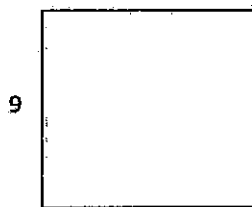
59. 10-sided polygon

Find the perimeter and area of each figure.

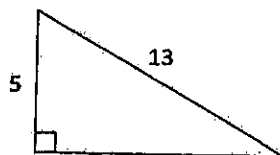
60. Rectangle



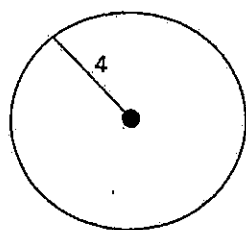
61. Square



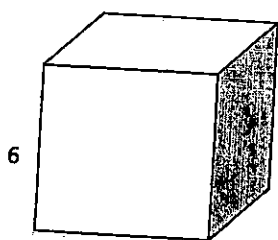
62. Right Triangle



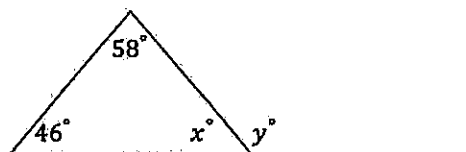
63. Circle



64. Find the volume of the cube.



65. Find the value of  $x$  and  $y$ .



66. Find the value of  $x$ .

