Bergenfield High School
Bergenfield, New Jersey

Mathematics Department
Summer Course Work

In preparation for

Geometry Honors

Completion of this summer work is required
on the first day of the
2024 - 2025 school year.

Student Name:_____

Bergenfield Public Schools
Mathematics Department
80 South Prospect Avenue
Bergenfield, New Jersey
(201) 387-3850

June 2024

Dear Parents and Guardians:

Attached are the summer curriculum review materials for Geometry Honors. This booklet was prepared by the Bergenfield High School Math department and contains topics that reflect content learned in prerequisite courses. These materials must be completed and brought to class on the first day of school in September.

Your child is required to complete this booklet over the summer. A test based on the material in the packet will be given to your child during the second week of school. It will count as the first test of the year and the grade will be determined as follows:

Completion of the packet on time will count 20% of the grade
Performance on the test will count 80% of the grade.

Students will not be permitted to use calculators on this exam, therefore this packet should be completed without the use of a calculator.

Thank you for your cooperation.

Sincerely,

Jim Fasano
Principal

Steven Neff
Director of Mathematics K - 12

Bergenfield High School
Mathematics Department

Summer Course Work
Geometry Honors

TABLE OF CONTENTS

All pages MUST show the work in order for the work to be accepted. If more paper is needed, the work may go on the back of each page or neatly on a separate page.

Completion of this booklet is required by the first day of the school year.

Equations

#1-10 Solve each of the following equations. Show all work.

1. $4x + 2 - x = 11$	2. $\frac{x}{6} = 18$
3. $6x - 14 = 2x + 10$	4. $\frac{x}{7} = 0.3912$
5. $x + x + 30 + x + 60 = 80$	6. $x^2 + 9 = 25$
7. $3x + 15 + 2x - 5 = 90$	8. $a^2 + 12^2 = 13^2$
9. $x^2 + 7x + 12 = 0$	10. $x^2 - 25 = 0$

Inequalities

Directions: Solve each inequality. Show all work.

11) $6x - 2 < 4x + 6$

12) $x + 2 + x + 3 > 3x + 2$

13) $5(x - 3) > 2x + 6$

Word Problems

14) If $x = \frac{1}{2}$, which number has the largest value? Show your work.

a) x^2

b) $\frac{1}{x}$

c) $-x$

d) $-\frac{1}{x}$

15) A triangle has side lengths measuring x+3, 2x and 4x-1 inches. If the perimeter is 30 inches, find the length of each side.

16) The ratio of girls to boys in a certain geometry class is 1 to 2. If there are 16 boys in this class, how many girls are in this class?

17) The championship game will be held next Saturday and they expect 1200 fans to attend. If the ratio of adult fans to children is 73:7, how many children will be attending the game?

18) Two angles have a sum of 90°. If their measures are in a ratio of 2:7, find the measure of the smaller angle.

Proportions

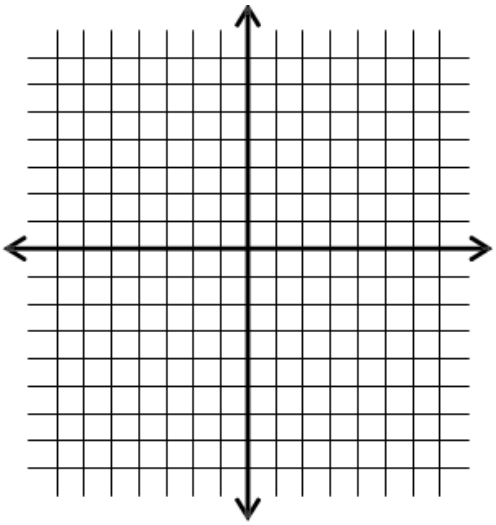
Directions: Solve each proportion. Show all work.

19) $\frac{x}{4} = \frac{15}{10}$	20) $\frac{2}{x+1} = \frac{x}{10}$
21) $\frac{x+1}{12} = \frac{x}{10}$	22) $\frac{x}{4} = \frac{9}{x}$

Coordinate Graphing

23) On a coordinate graph, if you start at the origin and move 3 units down and 5 units left, what are the coordinates of where you end up?

24) On the graph to the right, plot the following points to form a triangle.



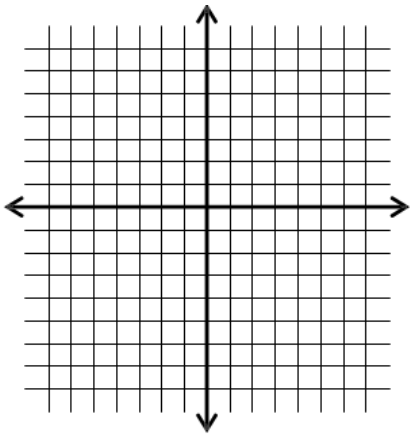
A(-1, 4) B(-5, 1) C(-1, 1)

On the same graph, plot and connect the following points to form a second triangle.

D(5, 1) E(1, 4) F(1, 1)

What do you notice about the two triangles?

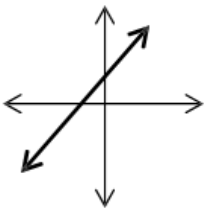
25) Graph $y = 2x - 5$.

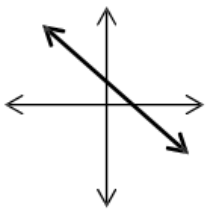


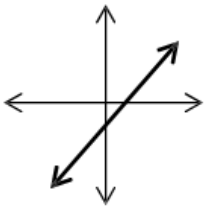
26) Find the slope and y-intercept of $y = 3x - 2$.

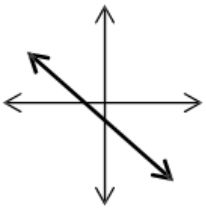
27) Find the slope and y-intercept of $6x - 3y = 9$.

28) Which of the following could be a graph of $y = -2x + 1$?

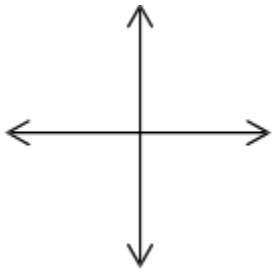
a) 

b) 

c) 

d) 

29) Sketch a line with a slope of 0 below.



30) Write an equation of a line whose slope is 4 and contains the point (-1, 2).

31) Write the equation of a line that contains the points (1, 6) and (-3, -10).

Parallel, Perpendicular, or neither: Identify each of the following pairs of lines as either parallel, perpendicular, or neither.

32) $y = 3x + 6$ $y = 3x - 1$	33) $y = 4x + 4$ $y = -4x - 1$	34) $6x + 3y = 12$ $2x - 4y = 8$

Using Formulas

35) If $b = 10$ and $h = 25$, find A using the formula $A = \frac{1}{2}bh$.

36) If $r = 8$, find A using the formula $A = \pi r^2$.

37) If $a = 6$ and $P = 28$, find b using the formula $P = 2a + 2b$.

38) Find x. $x = \frac{1}{2}(70 + 30)$.

39) Find x. $x = \frac{1}{2}(100 - 40)$.

40) Find x. $300 = \frac{1}{2}(x + 60)$.

41) Find x. $120 = \frac{1}{2}(200 - x)$.

Factoring & Solving Quadratic Equations

42) Factor completely. $x^2 - x - 12$

43) Factor completely. $x^2 - 2x - 35$

44) Factor completely. $2x^2 - x - 15$

45) Solve for x. $x^2 - 25 = 0$

46) Solve for x. $2x^2 - 16x = 0$

47) Solve for x. $x^2 - 42x + 80 = 0$

48) Solve for x. $2x^2 + 5x = 12$

49) Solve for x. $x^2 + 16 = -8x$

Simplifying Radicals & Operations with Radicals

50) Simplify completely. $\sqrt{48}$.

51) Simplify completely. $\sqrt{80}$.

52) Simplify completely. $\sqrt{27}$.

53) Simplify. $\frac{\sqrt{100}}{\sqrt{4}}$

54) Simplify. $\sqrt{\frac{50}{4}}$

55) Multiply then simplify completely. $\sqrt{27} * \sqrt{8}$.

56) Multiply then simplify completely. $\sqrt{8} * -2\sqrt{5}$.

57) Add or subtract. Simplify all answers completely. $\sqrt{8} + \sqrt{32}$.

58) Add or subtract. Simplify all answers completely. $3\sqrt{48} - 2\sqrt{75} + \sqrt{12}$.

59) Add or subtract. Simplify all answers completely. $3\sqrt{8} - \sqrt{50} + 3\sqrt{75}$.

60) Add or subtract. Simplify all answers completely. $\sqrt{80} + 2\sqrt{20} + \sqrt{25}$.