Notre Dame High School
220 Jefferson Street
Fairfield, CT 06825

June 2018

Dear Parent(s)/Guardian(s) and High Honors and Honors Geometry Students,

Mathematics is the gateway to all college and career opportunities. As stated by the National Research Council:

"Students today are growing up in a world permeated by mathematics. The technologies used in homes, schools, and the workplace are all built on mathematical knowledge. Many educational opportunities and good jobs require high levels of mathematical expertise."

In an effort to build a strong foundation for high school math skills and to improve student success in Geometry, all High Honors and Honors Geometry Students are required to complete the enclosed Summer 2018 Math packet. The problems in this packet will review key math skills from previous math courses, and will better prepare students for the new concepts of Geometry.

Summer Packet Guidelines:

No calculators are to be used to solve problems.

- All work must be done in pencil and shown under each problem.
- Summer packets for Honors and High Honors Geometry are due Friday, August 31, 2018.
- After reviewing packets, the teachers of these classes will know which preliminary skills need to be reviewed with the students.

The teachers of the Mathematics Department are available after school for extra help. I encourage all students to take advantage of working with their own teacher so the teacher can fully assess their knowledge of mathematics.

Please feel free to email me with any concerns or questions over the summer. I will be doing day trips during the summer but will get back to you within a few days of your email. You may reach me at: szembrzuski@notredame.org In the subject area indicate that it is a Geometry question.

Sherrie Zembrzuski
Math Department Chairperson

SUMMER MATH PACKET
NOTRE DAME HIGH SCHOOL
GEOMETRY
HH/H

The examples on the following pages are to be completed and handed into your teacher on Friday, August 31, 2018. This will aid the teachers of these classes to give focus to mathematical concepts that will be necessary for this class.

Name_____

USE ORDER OF OPERATIONS TO SIMPLIFY EACH OF THE FOLLOWING. SHOW ALL WORK.

1). $20 - [(100 \div 25)]\ 2 =$

2). $25 + 15 \bullet 5 \div 25 =$

3). $2[(16 \div 8) + 2] + 4 =$

4). $[3(7 - 2)] \div (9 - 6) =$

EVALUATE EACH OF THE FOLLOWING. SHOW ALL WORK.

5). $11 + 3x - 5y$ when $x = 1$ and $y = 2$

6). $(2y)^2 - x^2$ when $x = 3$ and $y = 2$

DETERMINE WHETHER THE GIVEN NUMBER IS A SOLLUTION OF THE EQUATION OR INEQUALITY. SHOW ALL WORK.

7). $4x + 2 = 10$; 1

8). $2x + 1 > 10$; 6

TRANSLATE EACH OF THE FOLLOWING INTO AN ALGEBRAIC EXPRESSION:

9). Two more than the product of four and a number. _____

10). The difference of seven and a number. _____

TRANSLATE THE FOLLOWING INTO EQUATIONS:

11). The difference of a number a and two is eight. _____

12). Fifteen is one less than the product of four and a number x. _____

COMPLETE EACH OF THE FOLLOWING:

13). $27 + 43 + (-14) + 11 + (-57) + 5 + (-36) + (-14) =$ _____

14). $52 - 312 =$ _____

15). $-27 - 56 =$ _____

16). $-6 - 19 + 4 - 8 - (-20) =$ _____

17). $(-28)(-3) =$ _____

18). $(-4)(25)(-2)(-3) =$ _____

19). $30(\frac{1}{6} + \frac{1}{3}) =$ _____

20). $-2(-r - 5s) =$ _____

21). $8a + 7 + 5a + 6 =$ _____

22). $(-60a) \div (10) =$ _____

23). $(-18m) \div (-6) =$ _____

24). $(\frac{2}{3})(\frac{-15}{6}) =$ _____

25). $(\frac{4}{5}) \div (\frac{-8}{9}) =$ _____

SIMPLIFY EACH OF THE FOLLOWING. SHOW ALL WORK.

26). $9(r + 3) + 7 =$

27). $-2(q + 2w) - 7(3w - 4q) =$

SOLVE EACH OF THE FOLLOWING. SHOW ALL WORK.

28). $12x + 19 = 3$

29). $9 = 3 - \frac{2}{7}x$

30). $12x - 2(4x - 6) = 28$

31). $4 - 3a = 7 - 2(2a + 5)$

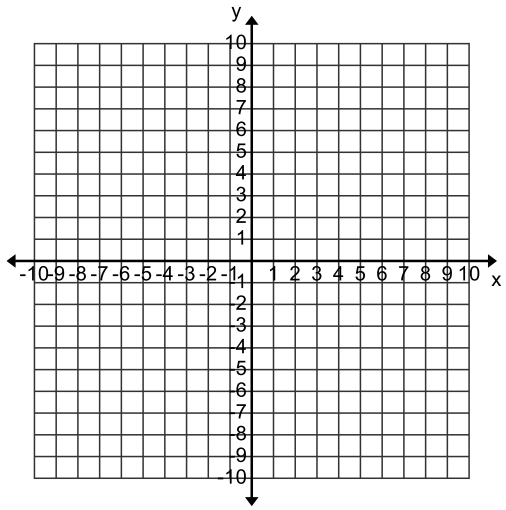
32). $2a - 5 = ¼(16a + 40)$

33). $x + 3(4x - 2) = 7x - 1$

34). **SOLVE THE FOLLOWING EQUATION FOR <u>Y:</u>**

$x - 3y = 9$

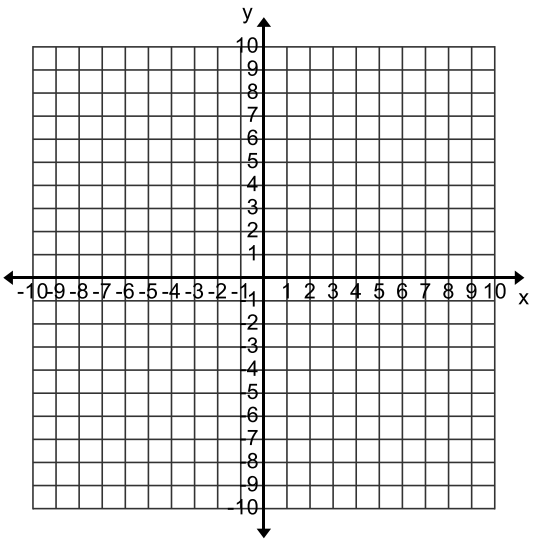
35). **GRAPH THE LINE y = 4x – 8 BY FINDING THREE POINTS ON THE LINE.**



36). **DETERMINE THE SLOPE OF THE LINE THAT PASSES THROUGH THE POINTS (-5,2) AND (2,-4)**

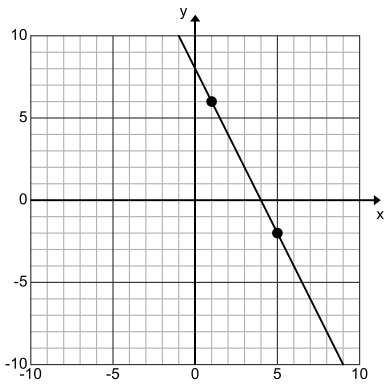
37). **THE EQUATION OF A LINE IS -4x + 3y = - 12. DETERMINE THE X-INTERCEPT AND THE Y-INTERCEPT OF THE LINE THEN GRAPH THE LINE USING THESE TWO POINTS.**

x-intercept = _____ y-intercept = _____

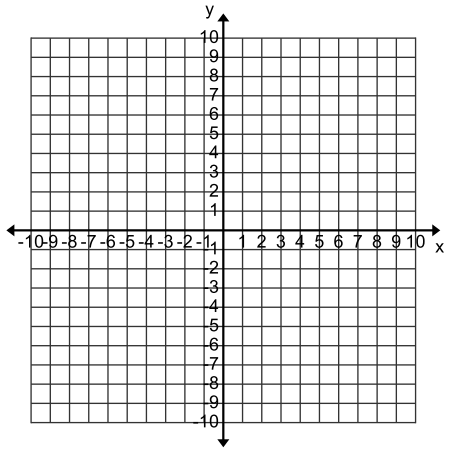


38). **USE THE GRAPH TO THE RIGHT TO DETERMINE THE SLOPE OF THE LINE BELOW.**

slope = _____

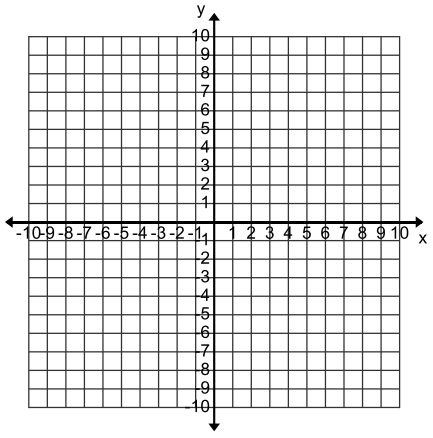


39). **SKETCH THE LINE THAT PASSES THROUGH THE POINT (-2,-4) AND HAS A SLOPE OF** $\frac{6}{5}$



40). **WRITE THE EQUATION 2x + 6y = -12 IN THE SLOPE – INTERCEPT FORM THEN USE THE GRAPH TO SKETCH THE LINE**.

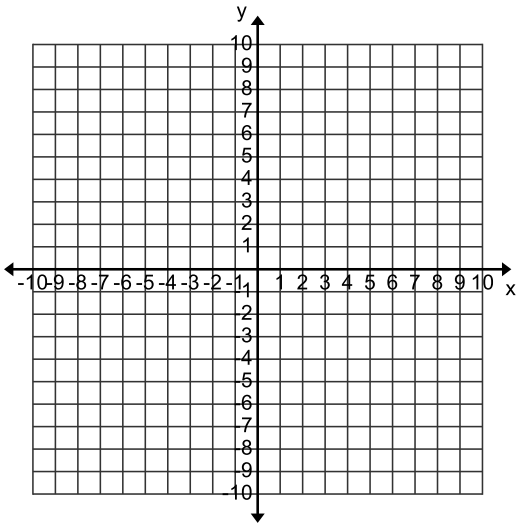
Slope-intercept form _____



41). **SOLVE THE FOLLOWING:**

$$|x - 7| - 4 = 3$$

42). **SKETCH THE GRAPH OF** $y = |x + 3| - 6$



FOR EACH OF THE FOLLOWING WRITE THE EQUATION OF THE LINE IN SLOPE INTERCEPT FORM

43). The slope is 2 and the y-intercept is 3.

44). Through (2,4) and m = 3

45). Through (2,3) and (6,11)

SOLVE EACH OF THE FOLLOWING BY SUBSTITUTION:

46). $4x + 3y = 1$
$4x + y = -5$

47). $x - y = 1$
$4x - y = 19$

SOLVE EACH OF THE FOLLOWING BY THE ELIMINATION METHOD:

48). $2x - 3y = -5$
$x + 3y = 20$

49). $2x + 3y = 13$
$x - y = 9$

SIMPLIFY EACH OF THE FOLLOWING. YOUR ANSWERS SHOULD CONTAIN POSITIVE EXPONENTS ONLY.

50). $e^6 \cdot e^3 \cdot e =$

51). $(-2gh^2)(5g^3h) =$

52). $(w^5)^2 =$

53). $(-3a^5b^4)^3 =$

54). $\frac{12x^5}{4x} =$

55). $6^{-2} =$

56). $\frac{1}{7^{-2}} =$

57). $(2a^{-1}b)^{-3} =$

DETERMINE THE PRINCIPAL SQUARE ROOT OF EACH OF THE FOLLOWING:

58). $\sqrt{49}$ =

59). $\sqrt{9x^4y^{10}}$ =

60). $-\sqrt{\frac{4}{121}}$

61). $\sqrt{64x^6y^{-26}}$ =

SOLVE EACH OF THE FOLLOWING BY TAKING THE SQUARE ROOT:

62). $x^2 = 100$

63). $x^2 - 44 = 47$

SOLVE EACH OF THE FOLLOWIING BY USING THE QUADRATIC FORMULA:

64). $x^2 + x - 6 = 0$

65). $6x^2 - x = 2$