

**Notre Dame High School**

**220 Jefferson Street**

**Fairfield, CT 06825**

**June 2022**

Dear Parent(s)/Guardian(s) and College Prep 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 keep our mathematics students ready for their sophomore year all Geometry students are required to complete the enclosed Summer 2022 Math packet. We find that during the summer many of the concepts that were taught in the previous year's math class are "forgotten" over the summer and will have to be reviewed at the beginning of the school year. 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 College Prep Geometry are due Friday, September 2, 2022.
- 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](mailto:szembrzuski@notredame.org) In the subject area indicate if it is a Geometry question. I wish everyone an enjoyable summer and look forward to seeing everyone at the end of August.

Sherrie Zembrzuski  
Math Department Chairperson

# SUMMER MATH PACKET

## NOTRE DAME HIGH SCHOOL

### GEOMETRY

CPI/CP2



**The examples on the following pages are to be completed and handed into your teacher on Friday, September 2, 2022. This will aid the teachers of these classes to give focus to mathematical concepts that will be necessary for this class.**

Name \_\_\_\_\_

**SIMPLIFY EACH OF THE FOLLOWING**

1). $-4 + 23 =$ _____	2). $(-14) + (-11) =$ _____
3). $(39) \div (-13) =$ _____	4). $\frac{2}{5}(-10) =$ _____
5). $\left(\frac{3}{5}\right) \div \left(\frac{-2}{15}\right) =$ _____	6). $(3.5)(-8) =$ _____

**EVALUATE EACH OF THE FOLLOWING:**

7). $15 \div (2a + 1)$ when $a = 1$	8). $5c - (2 + c)$ when $c = 2$
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**9). WRITE THE FOLLOWING AS A REPEATED MULTIPLICATION, THEN SIMPLIFY”**

$$(3)^4 =$$
 \_\_\_\_\_

**USE ORDER OF OPERATIONS TO SIMPLIFY EACH OF THE FOLLOWING:**

$$10). 36 \div 4 + 2 =$$
 \_\_\_\_\_

$$11). 3^4 + 12 \div 3 - (1 - 9) =$$
 \_\_\_\_\_

**SIMPLIFY BY COMBINING LIKE TERM:**

$$12). 9(x - 1) - 5(3x + 2) =$$
 \_\_\_\_\_

**SOLVE EACH OF THE FOLLOWING: SHOW ALL WORK. YOU WILL NOT RECEIVE CREDIT IF THE WORK IS NOT SHOWN.**

13).  $4(z - 1) + 1 = 21$

14).  $5(x + 2) - 7 = 5x + 3$

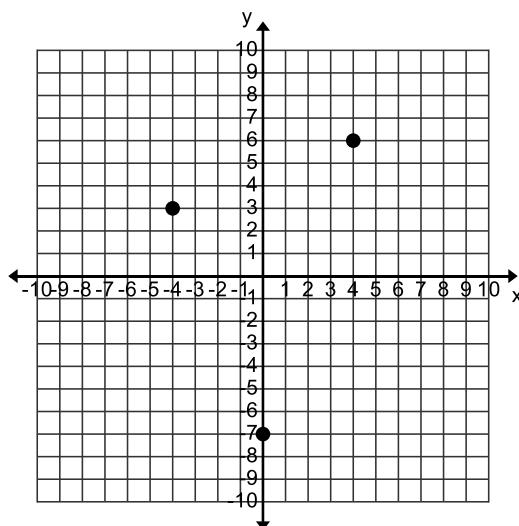
15). SOLVE:  $\frac{s}{10} = \frac{1}{2}$

16). The ratio of lemon juice to water in lemonade is 1:5. If 15 cups of water are used to make a pitcher of lemonade, how many cups of lemon juice are needed

17). Estimate a 20% tip on a check for \$34.30.

**FROM THE GRAPH DETERMINE THE COORDINATES OF THE GIVEN POINTS AND THEN DETERMINE THE QUADRANT THE POINTS ARE IN.**

POINTS	COORDINATES	QUADRANT
18). A	( , )	
19). B	( , )	
20). C	( , )	

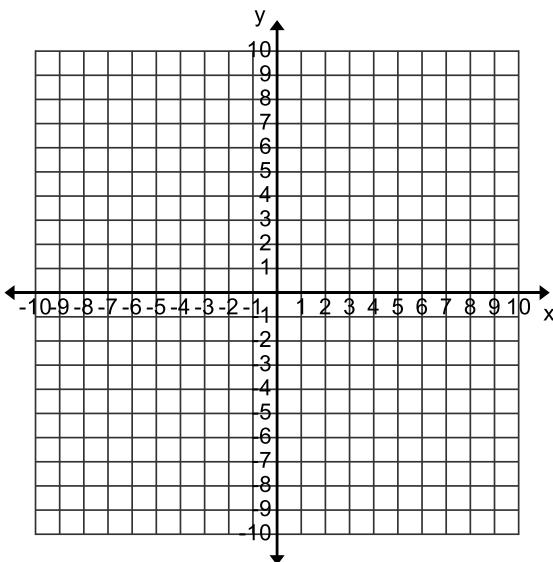


21). USE THE GIVEN EQUATION AND VALUES FOR X TO GENERATE A SET OF ORDERED PAIRS. GRAPH THE ORDERED PAIRS AND DESCRIBE THE PATTERN

$$y = |x - 3| - 6 \quad x = 1, 2, 3, 4, 5$$

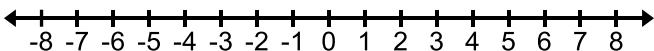
x	y	(x,y)
1		
2		
3		
4		
5		

PATTERN \_\_\_\_\_

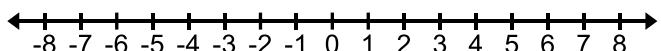


SOLVE EACH OF THE FOLLOWING. GRAPH THE SOLUTIONS ON THE NUMBER LINE PROVIDED. SHOW ALL WORK.

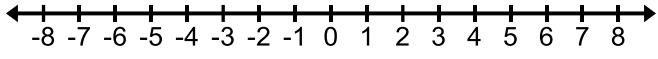
22).  $26 < x + 31$



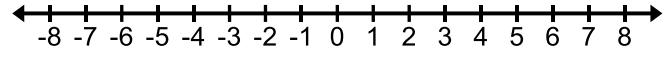
23).  $\frac{n}{-3} \geq 2$



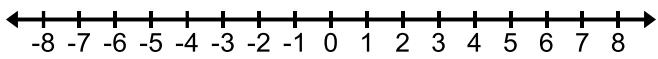
24).  $-4x < -24$



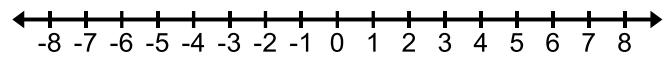
25).  $-2(x - 5) < 4^2$



26).  $-8 \leq c - 3 < -1$

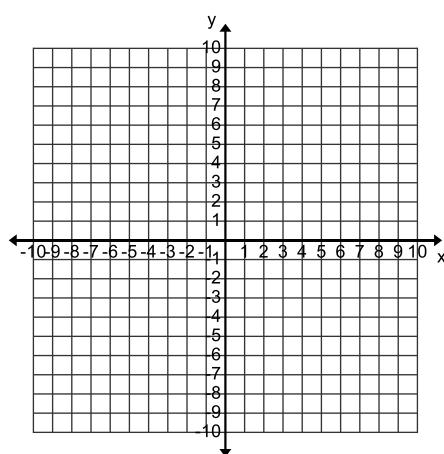


27).  $a - 6 < -4$  or  $a - 1 > 5$



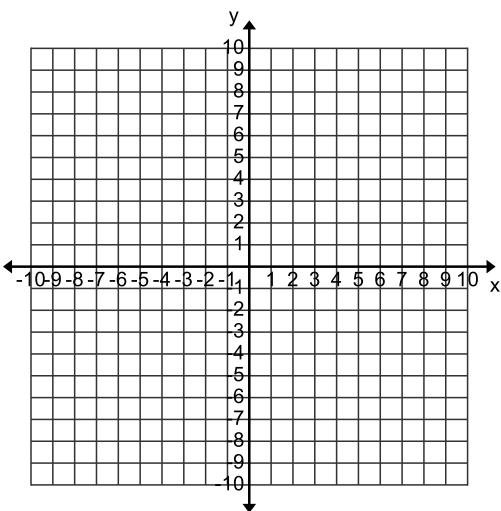
28). GRAPH THE FUNCTION  $y = |x - 1|$  | THE DOMAIN IS ALL REAL NUMBERS

$x$	$y =  x - 1 $	$(x, y)$
-3		
-1		
0		
1		
3		



29). GRAPH THE FUNCTION  $y = x^2 - 4$ . THE DOMAIN IS ALL REAL NUMBERS

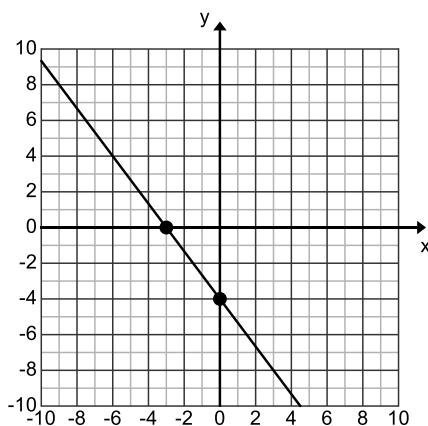
x	$y = x^2 - 4$	(x, y)
-2		
-1		
0		
1		
2		



30). FROM THE GRAPH DETERMINE THE X AND Y INTERCEPTS:

x-intercept = \_\_\_\_\_

y-intercept = \_\_\_\_\_



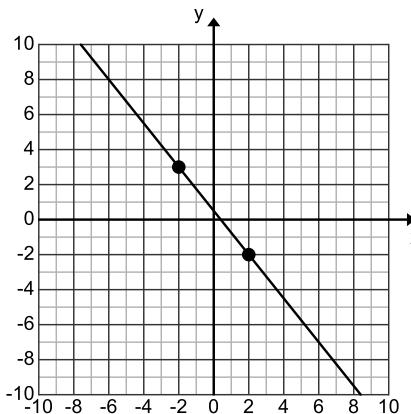
31). FROM THE EQUATION, DETERMINE THE SLOPE OF THE LINE:

$$6x + 2y = -4$$

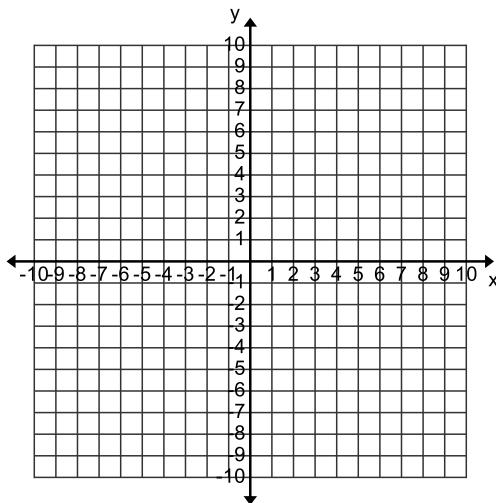
$$\text{slope} = \underline{\hspace{2cm}}$$

32). FROM THE GRAPH DETERMINE THE SLOPE OF THE LINE:

$$m = \underline{\hspace{2cm}}$$



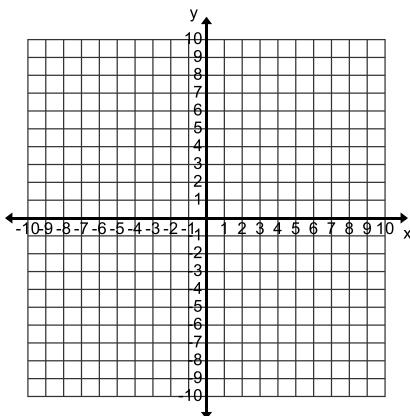
33). GRAPH THE LINE WHOSE SLOPE IS 2 AND THE Y-INTERCEPT IS - 4.



34). PUT THE EQUATION  $2x - 3y = -3$  IN SLOPE INTERCEPT FORM. THEN STATE THE SLOPE AND Y-INTERCEPT AND GRAPH THE LINE.

$$\text{Slope } \underline{\hspace{2cm}}$$

$$\text{y-intercept } = \underline{\hspace{2cm}}$$



**CLASSIFY EACH OF THE FOLLOWING POLYNOMIALS BY DEGREE(CONSTANT, LINEAR, QUADRATIC, CUBIC, QUARTIC OR QUINTIC) AND THEN BY THE NUMBER OF TERMS (MONOMIAL, BINOMIAL, TRINOMIAL, POLYNOMIAL)**

POLYNOMIAL	DEGREE	NUMBER OF TERMS
35). $14h^3 + 2h + 10$		
36). $7y - 10y^3$		
37). $2a^2 - 5a + 34 - 6a^4$		
38). $5y + 2$		

**COMPLETE THE FOLLOWING ADDITIONS OR SUBTRACTIONS:**

39).  $(2x + 5) + (3x - 2) =$  \_\_\_\_\_

40).  $(4c^2 + 3c) + (c^2 + 6c) =$  \_\_\_\_\_

41).  $(63x - 10) - (8x + 3) =$  \_\_\_\_\_

42).  $(-16z^2 - 8z + 17) - (-11z^2 - 8z + 13) =$  \_\_\_\_\_

**SIMPLIFY EACH OF THE FOLLOWING. YOUR ANSWER SHOULD HAVE POSITIVE EXPONENTS:**

43).  $9^{-2} =$  \_\_\_\_\_

44).  $\frac{a^{-2}b^4}{c^{-3}} =$  \_\_\_\_\_

45).  $x^3y^{-4}x^2 =$  \_\_\_\_\_

46).  $b^4g^{-5} =$  \_\_\_\_\_

**SIMPLFY EACH OF THE FOLLOWING AS MUCH AS POSSIBLE:**

47).  $3^4 =$  \_\_\_\_\_

48).  $(-3)^3 =$  \_\_\_\_\_

49).  $\left(\frac{2}{3}\right)^{-3} =$  \_\_\_\_\_

50).  $8^2 =$  \_\_\_\_\_

**COMPLETE THE FOLLOWING MULTIPLICATIONS:**

51).  $-2a^2(3a^2 - 2a + 3) =$  \_\_\_\_\_

52).  $(x - 2)(x + 7) =$  \_\_\_\_\_

53).  $(5x - 7)(3x - 8) =$  \_\_\_\_\_

54).  $(5x + 7y)(5x - 7y) =$  \_\_\_\_\_