Notre Dame High School

220 Jefferson Street

Fairfield, CT 06825

June 2022

Dear Parent(s)/Guardian(s) and Incoming Pre-Algebra 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 Pre-Algebra students and are required to complete the enclosed Summer 2022 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 Pre-Algebra.

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 Pre-Algebra I 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.

Calculators are not required in our Pre-Algebra class.

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 Pre-Algebra question.

Sherrie Zembrzuski

Math Department Chairperson

SUMMER MATH PACKET
NOTRE DAME HIGH SCHOOL
PRE-ALGEBRA

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_____

COMPLETE EACH PROBLEM SHOWING ALL YOUR WORK. NO CACULATORS FOR THIS PACKET!

1	$\begin{array}{r} 500 \\ -\ 369 \\ \hline \end{array}$	2	$\begin{array}{r} 251 \\ \times\ \ 7 \\ \hline \end{array}$	3	$\frac{265}{5} =$
4	8.5 – 2.9=	5	0.23 X 0.5=	6	3. 1 + 2 + 0.9=
7	12. 5 ÷ 0.5 =	8	5^2=	9	25 x 25 =
10	Find the average of these numbers: 50, 25, 75.	11	Joe has 80 stamps. 20%of the stamps are state stamps. How many state stamps does he have?	12	Find the area of a room with the dimensions of 15 ft by 10 ft.

13	$\frac{3}{5} + \frac{4}{5} =$	14	$6 - 1\frac{4}{5} =$	15	$\frac{2}{5} + \frac{1}{2} =$
16	$\frac{4}{5} \times \frac{1}{2} =$	17	$1\frac{1}{2} \times 8$	18	$\frac{5}{8} \div \frac{5}{4} =$
19	$\frac{2}{7} = \frac{x}{14}$ x = _____	20	Convert $\frac{4}{5}$ to a decimal.	21	Convert 0.41 to a fraction.

OPERATIONS WITH INTEGERS

When adding two positive integers, the sum is always **positive**. 5 + 7 =12

When adding two negative integers, the sum is always **negative.** -5 + (-7) = -12

When adding a positive and negative number, you **subtract the smaller number from the larger number and then take the sign of the larger number.** -5 + 7 = 2 5 + (-7) = -2

22	-10 + (-15)=	23	-9 + 4=	24	20 + (- 30)=

When subtracting integers, you **change the subtraction sign** to an addition sign and then take the **opposite of the number** that immediately follows the newly placed addition sign.

3 – 4 = Keep the 3 and change the subtraction sign to addition and then the opposite of 4 is -4.

Therefore the problem becomes 3 + (-4) which equals -1.

-2 – 8 = -2 + (-8) which equals -10 -3 – (-6) = -3 + 6 = 3

22	10 – 12 =	23	-10 – 10 =	24	-2 - (- 3)=

Rules for Multiplication of Integers

Positive x Positive= Positive 6(12) = 72	Positive x Negative = Negative 12(-6)= -72	Negative x Positive= Negative -6(12)= -72	Negative x Negative= Positive -12(-6) = 72

25	10(- 5) =	26	-9(10) =	27	-3(- 30) =

Rules for Division of Integers

Positive ÷ Positive=Positive 12÷ 6 = 2	Positive÷ Negative = Negative 12÷ (-6)= -2	Negative ÷Positive=Negative -12 ÷ 2= -6	Negative ÷ Negative= Positive -12÷ (-6) = 2

25	20÷ (- 20) =	26	-10÷ 5 =	27	-20÷ (- 10) =

Simplifying or Reducing Fractions

Simplify each fraction completely**. Example:** $\frac{3}{9} = \frac{3 \div 3}{9 \div 3} = \frac{1}{3}$

28	$\frac{4}{6}$ =	29	$\frac{5}{25}$ =	30	$\frac{6}{15}$ =

Evaluating an Expression

When you evaluate an expression, you replace the variable (letter) with the indicated number and then simplify the expression.

If x = 3 and y = 6, what is the value of 2y + x? 2(6) + 3 = 2 X 6 + 3 = 15 $\frac{y}{x} = \frac{6}{3} = 2$

Evaluate each expression when y = 5 and x = 15 (Show your work!)

31	5y – x =	32	y + y – x =	33	10x =
34	$\frac{x}{y}$ =	35	$\frac{3y}{x}$ =	36	$\frac{1}{2}$y =

Order of Operations

Use **PEMDAS (P**lease **E**xcuse **M**y **D**ear **A**unt **S**ally) is an acronym that provides a good way to remember your order of operations:

P: Parentheses ( ) **E:** Exponents **MD:** x or ÷, whichever comes first **AS:** + or -, whichever comes first!

Simplify and show all your work!

37	12 – 2 x 3=	38	(3 + 9) ÷ 4 + 3=	39	3^3 + 10 ÷ 2

40	Tom has used $20 to buy a package of markers that cost $5.95 a package of art paper that cost $6.50. How much change did Tom receive?	41	Jasmine bought 3 packages of cookies. Each package had 16 cookies. How many cookies did she purchase?

43. James has 121 baseball cards. He gave 23 to his friend Carlos and 39 to his friend Juan. How many baseball cards does he now have?

Solving Equations

Model: **x – 12 = 86** + 12 = + 12 x = 98	**Model: 4x = 40** 4 = 4 x = 10

Solve each equation for x:

44	x + 12= 48	45	-6x = 60	46	5x = 121

Model: 2**x – 12 = 12** + 12 = +12 2x = 24 2 = 2 **x = 12**	**Model: 3x + 10 = 40** -10 = -10 3x = 30 3 = 3 **x = 10**

47	2x + 12= 36	48	9x + 9 = 18	49	5x – 10 = 30

CONGRATULATIONS YOU FINISHED! MAKE SURE YOU HAVE ALL YOUR WORK SHOWN!