Notre Dame High School

220 Jefferson Street

Fairfield, CT 06825

June 2015

Dear Parent(s)/Guardian(s) and Incoming College Prep 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 Algebra 1, all College Prep Algebra students are required to complete the enclosed Summer 2015 Algebra 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 Algebra 1.

Summer Packet Guidelines:

- No calculators are to be used to solve problems.
- All work must be done in pencil and shown under each problem, along with the answer for each problem.
- Summer packets and answer sheets are due Wednesday, September 2, 2015.
- The grade for the Summer Packet will be the first grade of the marking period.

The teachers in the Mathematics Departments look forward to working collaboratively with you and your child next year. They 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 an Algebra question.

Sincerely yours,

Sherrie Zembrzuski

Math Department Chairperson

SUMMER MATH PACKET

NOTRE DAME HIGH SCHOOL

ALGEBRA I

CP1/CP2

The examples on the following pages are to be completed and handed into your teacher on Wednesday, September 2, 2015. This will aid the teachers of these classes to give focus to mathematical concepts that will be necessary for this class.

Name_____

COMPLETE EACH OF THE FOLLOWING:

1). 9,158 - 2,369	2). 609 x 6	3). $\frac{265}{5}$ =
4). 25 x 25	5). 8.35 - 2.1 =	6). .23 x .5 =
7). 15 - 8.75 =	8). $\frac{125}{5}$ =	9). 1.38 ÷ .6 =
10). .6 + 5 + 1.23 =	11). 875 ÷ 35 =	12). 25 ÷ .5 =

13). James measured the length of 4 ropes. The lengths were: 5.5 ft, 2.5 ft, 4.5 ft, 6.4 ft and 1.6ft. What was the average length of the ropes James measured?	14). James has 80 stamps. ¼ of the stamps are state stamps. How many state states does James have?
15). There are 120 freshmen at ND. 60% are boys. How many boys are in the freshman class?	16). Mrs. Smith baked 4 dozen cookies. ½ of them were chocolate chip, ¼ were sugar cookies. The remaining cookies were oatmeal. How oatmeal cookies did she bake?
17). Find the area of a rectangular room with the dimensions of 15 ft by 20 ft.	18). Kim bought three shirts. Each shirt cost $25.75. He gave the clerk a 100 dollar bill. Round his change to the nearest dollar

COMPLETE EACH OF THE FOLLOWING:

19). $3\frac{1}{2}$ + $1\frac{4}{5}$ _____	20). 6 - $1\frac{3}{5}$ _____	21). $3\frac{1}{3}$ - $2\frac{3}{5}$ _____
22). $\frac{3}{5}$ x $\frac{4}{9}$ =	23). $1\frac{1}{2}$ x $\frac{8}{9}$ =	24). $\frac{5}{8}$ ÷ $\frac{25}{16}$ =
25). $\frac{\frac{3}{4}}{12}$ =	26). $\frac{\frac{2}{3}}{\frac{2}{3}}$ =	27). $\frac{3}{4}$ x 12 x $\frac{1}{3}$ =

ADDING AND SUBTRACTING INTEGERS

Integers are positive numbers, negative numbers, and zero. Adding integers is very easy.

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: 1. Subtract the smaller number from the larger number.
2. Take the sign of the larger number.

-5 + 7 = 2	5 + (-7) = -2	-10 + 20 = 10	-20 + 10 = -10

28). 9 + (-9) =	29). -10 + -10 =	30). -8 + (-2) =
31). -9 + (-11) =	32). 9 + 29 =	33). -6 + 12 =
34). 100 + (-20) =	35). 23 + (-19) =	36). -23 + -9 =

Subtraction of Integers is easy if you follow the steps below.

1. Change the subtraction sign into an addition sign.
2. Take the opposite of the number that immediately follows the newly placed addition sign.

Let's take a look at the problem 3 - 4. According to step #1, we have to change the subtraction sign to an addition sign. According to step #2, we have to take the opposite of 4, which is -4. Therefore the problem becomes 3 + (-4). Using the rules for addition our answer is -1.

Here is another problem: -2 - 8. Switching the problem to an addition problem, it becomes -2 + (-8), which equals - 10.

COMPLETE THE FOLLOWNG SUBTRACTIONS:

37). 6 - (-2) =	38). 5 - 9 =	39). - 6 - 9 =
40). - 9 - 10 =	41). 10 - (-40) =	42). 5 - 25 =
43). - 9 - (- 11) =	44). 12 - (14) =	45). 80 - 40 =

Rules for Multiplication of Integers

Positive x Positive	Positive Answer
Positive x Negative	Negative Answer
Negative x Positive	Negative Answer
Negative x Negative	Positive Answer

Examples: 5 x (-6) = -30 -7(-7) = 49 25(-4) = -100 6 x 9 = 54

Complete the following:

46). -9(12) =	47). -12(-12) =	48). -12(20) =
49). -33(-9) =	50). 90(-9) =	51). -11(-9) =

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Rules for Division of Integers

Positive divided by Positive	Positive Answer
Positive divided by Negative	Negative Answer
Negative divided by Positive	Negative Answer
Negative divided by Negative	Positive Answer

Examples: $-20 \div 5 = -4$ $-20 \div -5 = 4$ $20 \div 5 = -4$

Complete the following examples:

52). $-90 \div 10 =$	53). $-12 \div -4 =$	54). $-120 \div 10 =$
55). $-33 \div -11 =$	56). $90 \div -9 =$	57). $-11 \div -11 =$

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 the expression: $2y + x$ equals $2(6) + 3 = 2 \times 6 + 3 = 15$

y/x means y divided by x $6/3 = 2$

Evaluate each expression when y = 5 and x = 10

58). $5y - x =$	59). $y + y - x =$	60). $6 + (x - y) =$
61). $x/y =$	62). $3x/y =$	63). $15x - 2y =$
64). $12 - y + x =$	65). $5y - 2x =$	66). $3y - 2y + x =$

Rename Fractions, Decimals, and Percents

To convert between fractions and percents we must first convert fractions into decimals. We divide the numerator (top number of a fraction) by the denominator (the bottom number of a fraction). So

$\frac{3}{5} \rightarrow 3 \div 5$ $\frac{3}{5}$ is equivalent to 0.6

To convert a decimal to a percent, we multiply the decimal by 100 (percent means a ratio of a number compared to 100). A short-cut is sometimes used by moving the decimal two places to the right (which is equivalent to multiplying by 100), so

0.60 x 100 = 60% $\frac{3}{5} = 0.6 = 60\%$

To convert a percent to a decimal , we divide the percent by 100.

60% ÷ 100 = .60 60% = 0.6

To change a percent to a fraction, we write the number as the numerator and 100 as the denominator and then simplify.

$35\% = \frac{35}{100} = \frac{7}{20}$

Rewrite each fraction as a decimal: (Show your division work)

67). $\frac{4}{5} =$	68). $\frac{6}{8} =$	69). $\frac{1}{2}$

Change each percent to a decimal:

70). 8% =	71). 56% =	72). 150% =	73). 1% =

Change each decimal to a simplified(reduced) fraction:

74). .25 =	75). .45 =	76). 1.5 =