

**IMMACULATE CONCEPTION HIGH SCHOOL**  
**ALGEBRA 2**  
**SUMMER REVIEW**

This packet contains problems that we as a mathematics department feel you should know from previous math courses. It is important that you review these problems as they will appear throughout this course. We feel this will give you an advantage when beginning Algebra 2 and it will guide your teacher as to what you know and what you may need extra help on.

This packet **must be completed** prior to the beginning of the school year. It is recommended that you begin working on this review early August so the material stays more current with you. Do your best on these problems; look in old math books or old notes to help guide you. All work must be shown when working each problem. **Calculators are not allowed!** It is very important that you practice your basic skills without a calculator. We will spend the first week of school going over these problems. You will be tested on this material and you will not be allowed to use a calculator. Calculators will be used throughout the course where the teacher finds it necessary. All arithmetic operations must be done mentally.

MUST SHOW ALL WORK

**PART 1: Real Numbers and Number Operations.**

I. Perform the operation.

1.  $-10 + 7$

2.  $-2 + 16$

3.  $-3 - (-5)$

4.  $8 - 12$

5.  $-14 + -4$

6.  $-30 \div (-5)$

7.  $6(-7)$

8.  $(-12)(-2)$

II. Graph the real numbers on a number line. (Use a closed circle at each number)

9.  $\{-4, -2, 0, 3\}$

10.  $\left\{\frac{-3}{2}, \frac{-11}{3}, \frac{5}{4}\right\}$

III. Write an expression and evaluate.

11. What is the sum of -20 and 8?

12. What is the difference of 12 and -25?

13. What is the product of 5 and -7?

14. What is the quotient of 36 and -12?

## PART 2: Algebraic Expressions and Models

I. Write the expression using exponents.

Example: 3 to the fifth power      Solution:  $3^5$

1. 5 to the tenth power

2. -2 to the third power

3.  $y y y y y$

II. Evaluate the power

4.  $4^4$

5.  $(-3)^5$

6.  $(-4)^2$

III. Evaluate the following using order of operation. (PEMDAS or Please Excuse My Dear Aunt Sally)

7.  $6 \cdot 2 + 35 \div 5$

8.  $-6 + 3(-3 + 7)^2$

9.  $24 - 8 \cdot 12 \div 4$

IV. Evaluate the expression for the given value or x and y.

10.  $x - 12$  when  $x = 7$

11.  $25x(x - 4)$  when  $x = -1$

12.  $(3x)^2 + 4y$  when  $x = 2$  and  $y = -8$

V. Simplify the expression. (Combine like terms)

13.  $-19x^2 + 4x + 15 - 7x^2 - 10x - 8$

14.  $5(2x - 7y) - 3(6x + 4y)$