

IMMACULATE CONCEPTION HIGH SCHOOL

ALGEBRA 2 TRIGONOMETRY HONORS

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 couple of weeks 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 Number System

I. Graph the elements of the set on a number line.

1. $\{-4, -2, 0, 3\}$

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

II. Simplify each by finding the absolute value.

3. $|-12|$

4. $-|-5|$

5. $-|22| + |-8| - |5|$

III. Simplify each expression. Use the order of operations.

6. $\left(-\frac{5}{4} - \frac{2}{3}\right) + \frac{1}{6}$

7. $9 \cdot 4 - 8 \div 2$

8. $\frac{(-9 + \sqrt{16})(-3^2)}{-4 - 1}$

IV. Write each expression using exponents.

9. -3 to the fourth power

10. $a \cdot a \cdot a \cdot a \cdot a \cdot a$

V. Evaluate each expression.

11. $\left(\frac{1}{5}\right)^3$

12. -4^2

VI. Evaluate the expression if $a = -3$, $b = 64$, and $c = 6$

13. $-2a - \sqrt{b}$

14. $4a^3 + 2c$

15. $\frac{3c + a^2}{2b - 6c}$

VII. Simplify each expression.

16. $-8x - 12 + 3x - 5x + 9$

17. $-4 + 4(4k - 3) - 6(2k + 8) + 7$

PART 2: Linear Equations and Inequalities.

I. Solve the equation.

1. $7x + 8 = 1$

2. $6x - 3(5x + 2) = 4(1 - x)$

3. $\frac{3x}{4} + \frac{5x}{2} = 13$

4. $d = rt$ solve for t

5. $P = 2(L + W)$ solve for W

II. Translate each verbal phrase or sentence into a mathematical expression or equation. Use x to represent the unknown number.

6. Twice a number, decreased by 13

7. 12 increased by three times a number is 6.

8. The quotient of three times a number and 7

III. Solve each inequality and graph the solution on a number line.

9. $x + 4(2x - 1) \geq x$

10. $4 \leq -2x + 3 < 8$

11. $x + 1 > 3$ or $-4x + 1 > 5$

IV. Solve the absolute value equation or inequality.

13. $|2x + 5| = 14$

14. $|-3 + x| > 8$

15. $|3x - 1| \leq 11$

PART 3: Graphs, Linear Equations, and Functions

I. Graph each equation.

1. Find the x- and y-intercepts.

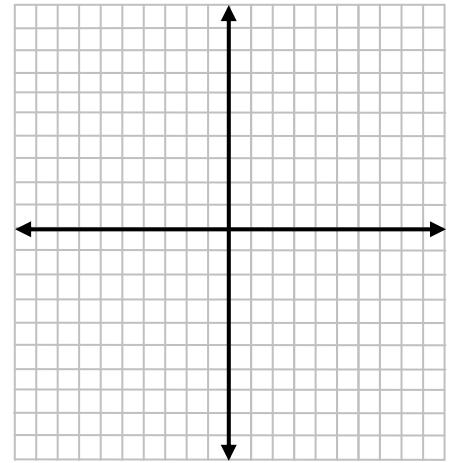
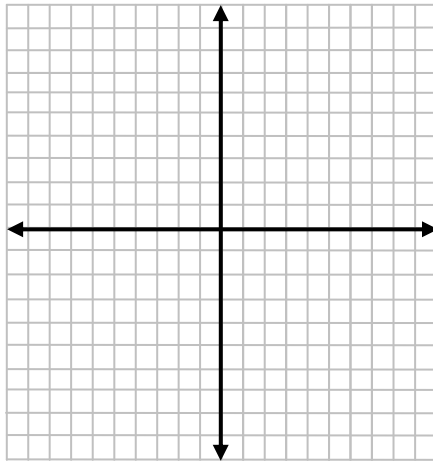
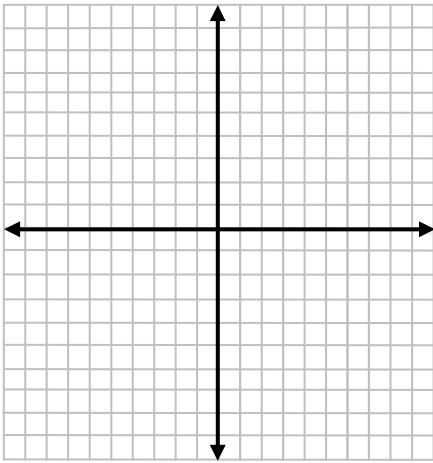
$$-2x + 3y = 12$$

2. Find the slope and y-intercept.

$$y = -\frac{5}{2}x + 5$$

3. Make a table.

$$x + 4 = 0$$



II. Find the slope of the line through each pair of points.

4. (-2, -3) and (-1, 5)

5. (2, 4) and (-4, 4)

III. Write the equation in slope-intercept form with the given information. ($y = mx + b$)

6. $m = 5$ and $b = -\frac{1}{3}$

7. Through (5, 8) and $m = -2$

8. Through (-4, -2) and $m = 0$

9. Through (3, 8) and vertical

10. (5, -2) and (-3, 14)

11. Through (7, 2) parallel $3x - y = 8$

IV. Graphing inequalities and compound inequalities.

12. $y \leq -x + 2$

13. $x - 3y < 0$

14. $x + y < 1$ and $x > 1$

