

ALGEBRA I

Unit One Project: "Puzzling Numbers"

OBJECTIVES:

- ✓ Use order of operations to simplify expressions
- ✓ Evaluate expressions.
- ✓ Find opposites and use absolute value .

In this unit, you will be spending time working with numbers and variables in algebraic expressions. These are the foundation for going further in mathematics and to actually be able to apply math. All of you will apply math and its logical powers in various ways in the future.

This project will allow you to use some of the skills you will be exploring in this unit. Throughout the unit, you will experience everything you need to learn to complete this project. **This project is worth 50 points, will be scored using the rubric that follows, and is due the day before the unit one exam.**

You are to create a "crossword" puzzle but with numbers. You will have a minimum of 25 total clues going both across and down. All of your answers to the clues must be linked together. You will have to create and solve clues so you get the exact number that you want. You can get negative answers; however, all answers must be integers. The number puzzle will be put on graph paper and the clues can be put on any kind of paper, as long as it is separate from the puzzle. You will also create a key; therefore, you will turn in three papers. The guidelines will allow you some flexibility and a little fun too!

DESCRIPTION

1. Pick up at least two pieces of graph paper and one other paper type for your final copies.
 - 1st graph paper: puzzle squares
 - 2nd graph paper: puzzle squares filled in with the answers you obtained
 - 3rd paper: clues
 - **YOU WILL PROBABLY WANT EXTRA GRAPH PAPER TO PRACTICE!**
2. Your first piece of graph paper will be used to create a blank puzzle. The puzzle will contain empty boxes. Each empty box will either contain a negative sign or a single digit. Positive numbers DO NOT need a "+" sign. Negative numbers DO need a "-" sign. The answers to your clues must be integers. All answers to the clues must link to another answer from a different clue. The first example below shows -45 and -3 as answers linked by the "-" sign. The second example shows -45 and 43 linked by the "4".

-	4	5
3		

-	4	5
	3	

3. Make sure to number the first square for each answer much like a crossword puzzle. Your clues need to be placed on a separate piece of paper. As you write your clues, make your puzzle and solve it. It will take some erasing and some thought. Your clues must be from various areas. A minimum of 25 total clues going across and down linked together. Use \bullet for multiplication between numbers. Use / or \div for the division between two numbers.

Here are the guidelines and samples:

- A minimum of 15 order of operations clues. EXAMPLE: $4 + 3 \bullet 5$ EXAMPLE: $-2(3 + 5)$
- A minimum of 10 evaluating expressions clues: EXAMPLE: If $x = 5$, what is $4x - 7$?
- A minimum of 2 opposites or absolute value clues: EXAMPLE: The opposite of -7 EXAMPLE: $|-85|$
- A minimum of 3 clues where numbers are involved in other areas such as in games, history, the world, etc...
EXAMPLE: The year of the Declaration of Independence

You can have more than 25 clues. The degree of difficulty of your clues and your ability to solve them will better show your understanding of the ideas in the unit. The more complex and accurate you are, the better you will score.

4. Make your final copy of the puzzle by outlining the boxes you will use and placing the clue number in the first box.
5. Make your final copy of the clues. Number your clues. Have an "Across" section and a "Down" section.
6. Make your final copy of your key. Make sure you have done everything correctly.
7. Place your name on each of the three papers you are turning in.

RUBRIC FOR SCORING THE PROJECT

	4	3	2	1	0
<u>Clue Sheet</u> (x 1)	The clues are placed in numerical order in Across and Down sections and are easy to read and follow.	-	The clues are placed in the proper format but are somewhat difficult to comprehend.	-	The clues are not numbered, not organized, and vague.
<u>Clue Types</u> (x 1)	The minimum number of clues for each type has been met.	-	The minimum for one of the types has not been met.	-	The minimum for two or more types has not been met.
<u>Clue Difficulty</u> (x 3)	The clues contain more than two terms when applicable.	Most but not all clues contain more than two terms when needed.	Some clues have more than two terms.	Few clues have more than two terms.	All clues have two terms.
<u>Blank Puzzle Sheet</u> (x 1)	The boxes to be used are outlined with the clue numbers placed inside.	-	Somewhat difficult to follow which boxes or which numbers to use.	-	Impossible to figure out where to put one's answers.
<u>Puzzle Key</u> (x 5)	All clues have been solved correctly.	One or two clues have been solved incorrectly.	Three to five clues have been solved incorrectly.	Six to ten clues have been solved incorrectly.	More than ten clues have been solved incorrectly.
<u>Creativity & Neatness</u> (x 1)	Creative way of organizing the project with use of color and other details in the clues.	Creative way of organizing the project with some use of color and details in the clues.	Use of color and other details.	Some color utilized.	Little to no extra thought put into the project.
<u>Professional</u> (x 1)	-	-	The project has the clues typed and appears professional.	The project is neatly written and organized.	No extra time taken to improve the overall appearance.