

## Math 308 - Writing Assignment #1

In class, we conducted a brief writing exercise and discussion based on the following email:

*Dear X:*

*As you are probably aware, the State of Delaware is reevaluating its' mathematics curriculum for grades 9-12. As part of this effort, we are contacting educators, scientists, engineers, business leaders, parents, and other concerned parties in an effort to determine the key mathematical ideas and concepts that should make up our curriculum. As this stage, we are asking for email responses to the following questions: What one key mathematical idea, concept, or result do you think is most important for graduating high school seniors to master? Why is this idea, concept, or result of such importance? Thank you. Your participation is appreciated.*

*Sincerely,*

*Jack Q. Public*

*Delaware Board of Education*

### Your Task:

In this assignment, I'd like you to return to this email and prepare a written response. Your answers to the questions posed by the email need not be the same as your initial answers given in class. Hopefully the class discussion has helped you to revise and sharpen your thinking about these questions. To help you further as you think through your answer, I've also attached a list of mathematical ideas, concepts, and results to help spur your thinking.

### Role and Audience:

Your role in this assignment is as the recipient of the email above. You can imagine that you are a parent, an educator, a scientist, a mathematician, or another concerned party. Your audience is Jack Q. Public. He holds a Ph.D. in mathematics education, works for the Delaware Board of Education, and can be expected to be reasonably mathematically literate.

### Format:

Your answer should be **typewritten** and given to me in class on 2/12. The style should be that implied by the email above - that is, you should write as if you were answering the email from Jack Q. Public. Please type your name at the top of your paper.

### Expectations:

You should devote more thought and time to this exercise than we did to the exercise in class. You are responding to a request from a public official; please pay attention to your

style, grammar, and punctuation. When offering arguments for why the idea you choose to focus on is important, I would like you to offer at least *two* unique arguments. “Concept X is important because of its real world relevance” seemed to be a common and successful argument in class. If you use this argument, you should justify it carefully. You must also identify at least one additional reason why your idea, concept, or result should be taught to every student.

Grading:

This is part two of four parts of the first writing assignment. The entire assignment is worth 100 points. Your in class work was worth 1 point, this part is worth 19 points.

List of mathematical ideas, concepts, and results:

Area, length, and volume	Functions	Number
Variables	Trigonometric functions	Fractions
Proof	Arithmetic	Prime numbers
Rational numbers	Irrational numbers	Complex numbers
Infinity	Algebraic numbers	Transcendental numbers
Sets	Logic	Probability
Topology	Limits	Continuity
Maxima and minima	Exponential growth	Pythagorean theorem
Area as a limit	The integral	Derivative as a slope
Derivative as a limit	Logarithm	Fundamental theorem of calculus
Large numbers	Scientific notation	Infinite series
Negative numbers	Roots	Matrices
Groups	Linear growth	Quadratic equations
Statistics	Linear transformation	Permutations
Combinations	Binomial Theorem	Algorithm
Linear functions	Polynomials	Polynomial functions
Polygons	Polyhedra	Sequences
Recursion	Normal distribution	Conditional probability
Vectors	Periodic functions	Game theory