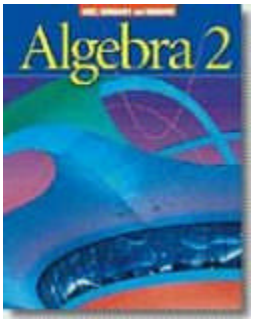
WEIGHTED ALGEBRA 2

INSTRUCTOR: Anthony T Sorrentino III, MAT
E-MAIL: atsorren@salsgiver.com
WEB PAGE: http://teacherweb.com/PA/StJosephHS/MrSorrentino/

PREREQUISITES: Successful completion of Algebra 1 and Geometry.

TEXT USED:

Schultz & Ellis. *Algebra 2*. Holt, Reinhart, and Winston Inc., 2003



COURSE DESCRIPTION:

This course is designed for students who have had previous Algebra experience, preferably, an entire Algebra 1 course. This course is faster-paced, spends less time reviewing Algebra 1 topics, and more time discussing Advanced Algebra and, time permitting, Trigonometry concepts. This course is meant to be challenging and is designed to prepare students for Weighted Precalculus 11. Therefore, students will be expected to demonstrate mastery of the topics covered.

MATERIALS:

The following materials will be needed in each of the courses described above. It is the students' responsibility that they come with these materials each and every day of class.

- PENCILS*
- NOTEBOOK WITH FOLDER -OR- BINDER.
- BINDER (For Portfolio)
- SMALL NOTEBOOK (For Journal)
- TI-83 PLUS GRAPHING CALCULATOR (One will be issued to you.)♦

* Note: Pencils must be used on exams and quizzes. They will not be graded if they are written in ink.

♦ Although the TI-83 Plus is the model provided by SJHS, the TI-84 calculators are equivalent.

GRADING:

The following are what I base my grades on and the percentage weight I place on each for this course.

- EXAMS/QUIZZES --- 30%
- NOTEBOOK/ASSIGNMENTS/LABS --- 20%
- ATTENDANCE & CLASS PARTICIPATION --- 15%
- PORTFOLIO --- 25%
- FINAL EXAM --- 10%

GRADE SCALE:		
	90% – 100%	**A**
	80% – 89%	**B**
	70% – 79%	**C**
	60% – 69%	**D**
	Below 60%	**F**

ASSESSMENTS USED:

EXAMS/QUIZZES:

I use several examination style assessments in this course. These are as follows:

ANNOUNCED QUIZZES(Usually worth 20-30 points): These quizzes are used to assess the class' knowledge on several related topics that have been recently covered. These are announced at least 2 days before they are given.

EXAMINATIONS/TESTS (Usually worth 100 points): Tests assess the class' knowledge on an entire unit of study. These are announced at least one week ahead of time.

POP QUIZZES (Usually worth 10-15 points): These quizzes are unannounced and are used mostly to see if the class is keeping up with the material. It is also a means of assuring regular attendance. STUDENTS WHO ARE NOT PRESENT ON THE DAY A POP QUIZ IS GIVEN CANNOT MAKE IT UP.

NOTEBOOK/ASSIGNMENTS/LABS:

NOTEBOOK: Students are given notes in class and assignments from the textbook that have them practice the concepts of what was covered in class. Students are expected to keep these notes and assignments organized. Notebooks are generally checked twice every nine weeks. **Notebook checks are worth 100 points.**

ASSIGNMENTS: At times, assignments are given to allow students to have more practice with some topics or to use their knowledge of those topics to explore new situations. **Point values are awarded based on the complexity of the assignment.**

LABS: Computer/Calculator labs have been designed to introduce topics or apply concepts that are taught in this course. When possible, class time is given to allow students the time to at least start work on these labs. **Labs are typically worth 30-50 points depending on the amount of work needed to complete them.**

ASSESSMENTS USED (CONTINUED):

ATTENDANCE/CLASS PARTICIPATION:

A student's attendance is crucial for his/her understanding of math. Therefore, a student needs to be in class consistently. For the vast majority of students, the basic fact is this; YOU MUST ATTEND CLASS REGULARLY TO BE SUCCESSFUL. Absences are not held against students per se; however, their participation is assessed on a daily basis. The following questions are considered when determining this grade.

- Does the student arrive on time?
- Does the student come prepared with materials, homework, and anything else they need for that class?
- Does the student have to be told to take out his or her materials?
- Is the student attentive?
- Is the student disruptive?
- Does the student display extra effort?
- Does the student volunteer to show his/her work?
- Does the student show his/her work after I ask?
- Does the student ask questions during instruction?
- Does the student work when I give the class time during the period?
- Does the student make up work on his/her own after missing a class or classes?

A student can improve this grade at any time during any grading period by being in class often, making up work when missed, simply being respectful of the teacher and his/her classmates, and participating actively in class.

PORTFOLIO:

Throughout the year, students will work on various assignments that will make up their portfolio. This alternate assessment permits ALL students to demonstrate their achievement in this course. The portfolio is made up of the following components.

JOURNAL (100 points): Students will be expected to keep a math process journal throughout the year. This should be kept in a notebook separate from their class notes and homework. More detail about this component will be given in separate directions for the journal that has been given to the students.

PORTFOLIO PROJECTS (50 points each): Students are assigned a packet of portfolio projects at the beginning of the year. These projects are designed for students to apply what they have learned to new situations and demonstrate their ability to problem solve. Projects from this packet are due throughout the year and submitted for a grade. Based on the grade, students are expected to correct the project before submitting it with the final portfolio at the end of the year.

FINAL PORTFOLIO ASSESSMENT (500 points): The final portfolio consists of the following.

- THE COMPLETE JOURNAL
- ALL PORTFOLIO PROJECTS
- ADDITIONAL ARTIFACTS
- SELF-REFLECTIVE PAPER

More information about these and their point values are given in the document FINAL PORTFOLIO ASSESSMENT which can be found on my website.

LATE ASSIGNMENTS/EXAMS:

Except under extenuating circumstances (severe illness, injury, family emergency, etc.) assignments are to be turned in on the due date, and exams are to be taken as scheduled.

Students absent on the day of an exam will be expected to take that exam the first day back from that absence that allows me to give it. A student will be informed and a message will be posted in PowerSchool regarding the date the student is to make up the test. If a student fails to make up the exam on that date, it will then be considered late.

Once an assignment or exam is categorized as late, the student will lose 10% of the points for each school day that the assignment is not turned in or the test is not taken. The maximum amount of points a student will lose for lateness is 50%. Additional points may be deducted due to the students performance on the assignment or exam.

Students who are absent for an extended period of time will be given sufficient time to make up exams or assignments, however, once a due date has been set, the student must make up the work by that date or have the deductions mentioned above taken.

ACADEMIC INTEGRITY:

Cheating is not tolerated in my classroom. Cheating is not fair to yourself as I am unable to truly assess your progress. It is also not fair to the students who work hard to ear their grade.

Therefore, this course will define CHEATING as the following:

1. Copying work off of someone else.
2. Having another person complete the work for you.
3. Talking during a test.
4. Using notes or anything else not permitted during an exam.
5. Failure to follow certain instructions during a test

Anyone caught doing any of the above will be subject to the following actions.

1st incident: Student receives an F on the assignment or exam. Administration notified. Parents notified by having to sign the exam/assignment on which the student cheated.

2nd incident: Student receives an F on every grade for the quarter up to and including the exam/assignment on which he/she cheated. Parent/Teacher/Student conference. Administration notified.

Frequent infractions can cause the student to fail the course.

CHEATING IS WRONG AND WILL NOT BE TOLERATED IN THE CLASSROOM.

A FINAL NOTE:

Although I teach in a style that emphasizes student responsibility, I realize that there will be times that students may require extra assistance in this course. I am always willing to assist any student who needs extra help either after school or through some other arrangement. Although I may not be able to stay with a student on a particular day due to other commitments, I am always willing to make arrangements to help my students outside of class.

In order for me to help my students, I would like to be informed of anything I need to know to do so. If any student or student's parents feel that the student's progress in my class is not up to their expectations, then please feel free to contact me so we can arrange a meeting to discuss this. I can only meet my full potential as a teacher when I am kept informed of all pertinent educational decisions regarding my students.

1ST QUARTER: LINEAR EQUATIONS & FUNCTIONS

CHAPTER 1: LINEAR EQUATION REVIEW

1.2/1.3 LINEAR EQUATION REVIEW
pp. 17-18 #11-63 odd
pp. 26-27 #11-31 odd, 32-34, 35-49 odd

1.4/8.1 DIRECT, INVERSE & JOINT VARIATION
p. 34 #15-36 every 3rd problem, 37-51 odd
p. 486 #15-33 every 3rd problem

1.5 LINEAR REGRESSIONS
pp. 41-42 #9-20, 22-23

1.6/1.8 SOLVING LINEAR EQUATIONS & ABSOLUTE VALUE EQUATIONS
p. 49 #13-55 odd, 62-63
p. 68 #25-39 odd

1.7/1.8 SOLVING LINEAR & ABSOLUTE VALUE INEQUALITIES
pp. 58-59 #12-48 every 3rd problem, 50-51, 52-69 every 3rd problem
p. 68 #42-57 every 3rd problem

CHAPTER 2: FUNCTIONS

2.1/2.2 BASIC OPERATIONS
pp. 90-91 #18-30 every 3rd problem, 56-70
p. 99 #19-69 odd

2.3 FUNCTION BASICS pp. 108-109 #17-57 odd

2.4 OPERATIONS WITH FUNCTIONS
***WORKSHEET ***

2.5 INVERSE OF A FUNCTION p. 122 #11-49 odd, 52

2.6 SPECIAL FUNCTIONS pp. 129-131 #17-51 odd, 73-74

2.7 GRAPH TRANSFORMATIONS
pp. 139-140 #11-49 odd, 60-65 −plus− the problems given below.

66. $g(x) = f(-2x-3)$

67. $g(x) = 2f(x+1)$

68. $g(x) = -f\left(\frac{1}{3}x+1\right)+4$

CHAPTERS 3 & 4: SYETEMS OF LINEAR EQUATIONS & MATRICES

****FOLLOW CHAPTER 3 & 4 DIRECTED NOTES****

LABS:

LINEAR FUNCTION EXPLORATIONS
GRAPH TRANSFORMATIONS

PORTFOLIO PROJECTS:

A LONG TIME AGO IN A MATH CLASS FAR, FAR, AWAY…

LIFE AT SORRENTINO MEMORIAL HIGH SCHOOL (2008-2009 EDITION)

LINEAR PROGRAMMING

INTRODUCTION TO PARAMETRIC EQUATIONS

2ND QUARTER: QUADRATICS & CONIC SECTIONS

CHAPTER 5: QUADRATIC FUNCTIONS

5.1 FOIL & BASIC GRAPH INFORMATION
p. 278 #13-45 odd (#13-25 find vertex as well)

5.2 SOLVING QUADRATIC BASIC EQUATIONS pp. 286-287 #15-43 odd

5.3 FACTORING pp. 296-297 #30-84 every 3rd problem

5.4 COMPLETING THE SQUARE p. 304 #17-45 odd

5.5 QUADRATIC FORMULA p. 311 #11-47 odd

5.8 QUADRATIC INEQUALITIES
pp. 334-335 #12-33 every 3rd problem, 42-57 every 3rd problem

QUADRATIC WORD PROBLEMS
****Complete worksheet****

5.6 COMPLEX NUMBERS
p. 320 #19-75 odd – plus – the problems listed below.

Evaluate the following:

1. i^{673}

2. i^{1005}

3. i^{218}

4. $\frac{1}{i^{51}}$

5. $\sqrt{-75}-\sqrt{-27}$

6. $\sqrt{-3}\cdot\sqrt{2}\cdot\sqrt{-6}$

7. $\sqrt{-5}\cdot\sqrt{-5}$

8. $\sqrt{2}\left(\sqrt{-8}+\sqrt{-18}\right)$

CHAPTER 9: CONIC SECTIONS

This lesson will make use of a PowerPoint presentation and study guide to guide the students through the topics in this chapter.

9.1 MIDPOINT FORMULA & DISTANCE FORMULA
pp. 567-568 #23-43 odd

9.2 PARABOLAS p. 576 #9-29, 36-47

9.3 CIRCLES p. 583 #8-13, 15-43 odd

9.4 ELLIPSES p. 592 #21-45

9.5 HYPERBOLA p. 601 #7-32

9.6 GENERAL FORM & NON-LINEAR SYSTEMS
Part 1: General Form – p. 611 #46-57
Part 2: Non-Linear Systems of Equations – p. 611 #9-45 odd

LABS: QUADRATIC FUNCTIONS INVESTIGATION

PORTFOLIO PROJECTS: QUADRATIC REGRESSION EXPLORATION
QUADRATIC CURVE FITTING
CONIC SECTIONS APPLICATIONS

3RD QUARTER: EXPONENTIAL, LOGARITHMIC & POLYNOMIAL FUNCTIONS

CHAPTER 6: EXPONENTIAL & LOGARITHMIC FUNCTIONS

6.1 BASICS pp. 358-359 #15-41 odd
6.2 EXPONENTIAL FUNCTIONS p. 367 #10-34

6.3 LOGARITHMIC FUNCTIONS pp. 374-375 #13-85 odd

6.4 LOGARITHMIC PROPERTIES p. 382 #17-61 odd

6.5 SOLVING EXPONENTIAL EQUATIONS
pp. 389-390 #11-45 odd, 47-59 odd

6.6 NATURAL BASE e pp. 397-398 #13-35 odd, 36-39, 41-59 odd, 73-75

6.7 SOLVING EXPONENTIAL & LOGAROTHMIC EQUATIONS
p. 407 #9-25 odd, 33-35, plus
EXPONENTIAL FUNCTIONS – ADDITIONAL EXERCISES

CHAPTER 7: POLYNOMIAL FUNCTIONS

7.1 BASICS pp. 429-430 #11-49 odd

7.2 POLYNOMIAL FUNCTIONS/GRAPHS p. 438 #9-27 odd

7.3 PRODUCTS AND FACTORS pp. 445-446 #15-90 every 3rd problem

7.4 SOLVING POLINOMIAL EQUATIONS (BASIC) p. 453 #11-49 odd

7.5 SOLVING POLINOMIAL EQUATIONS (ADVANCED)
pp. 463-464 #11-33 odd

LABS:

EXPONENTIAL FUNCTION INVESTIGATION WITH EXCEL

POLYNOMIAL FUNCTION EXPLORATIONS

PORTFOLIO PROJECTS:

EXPONENTIAL REGRESSIONS
EXPONENTIAL APPLICATIONS
DATING FOSSILS
POLYNOMIAL REGRESSION EXPLORATION
CONTAINER CONSTRUCTION

4TH QUARTER: RATIONAL & RADICAL FUNCTIONS

REVIEW INVERSE/JOINT VARIATION (8.1)

8.2 GRAPHS OF RATIONAL FUNCTIONS
pp. 495-496 #11-33 odd -plus-
Complete the following problems

Graph the following:

1. $f(x) = \dfrac{4x^2 - 100}{x - 5}$

2. $f(x) = \dfrac{x^2 - 4x - 12}{x + 1}$

3. $f(x) = \dfrac{x^3 - 9x}{x^2 - 5x + 2}$

4. $f(x) = \dfrac{2x^3 - 32x}{x^2 - 5x - 4}$

8.3 MULTIPLYING & DIVIDING RATIONAL FUNCTIONS pp. 502-503 #9-39 odd

8.4 ADDING/SUBTRACTING RATIONAL FUNCTIONS
p. 509 #11-41 odd, 42-45

8.5 SOLVING RATIONAL EQUATIONS & INEQUALITIES pp. 517-518 #9-37 odd

8.6 RADICAL EXPRESSIONS & FUNCTIONS pp. 525 #11-51 odd

8.7 SIMPLIFYING RADICAL EXPRESSIONS pp. 533-534 #15-96 every 3rd problem

8.8 SOLVING RADICAL EQUATIONS p. 542 #11-37 odd

ACKNOWLEDGEMENT

I have read the course description and class expectations for the **WEIGHTED ALGEBRA 2** course and I am aware of the classroom expectations in this course.

STUDENT NAME: _____

STUDENT SIGNATURE: _____

PARENT SIGNATURE: _____