

Course Outline - Math 140 QT

Summer 2011

Class 1 - Wednesday, June 8

Lecture: Course Information ([Syllabus](#), [Textbook Info](#), [Calculator Info](#))
[Fractions and decimals](#), Review of operations on polynomials ([Practice](#))

Homework: [Questions](#)

Also posted: [Review for Quiz 1](#), [Linear Equations](#), [Graphing Straight Lines](#),
Solving systems of linear equations by [elimination](#), by [substitution](#), [Exponents 1](#)

Extra Credit Assignments:

- 1) Prove that the set of all rational numbers is closed under addition, subtraction, multiplication, and division.
- 2) Prove that the decimal presentation of all rational numbers is terminating or repeating.

Class 2 - Thursday, June 9

Lecture: Completing the square ([Part 1](#), [Part 2](#), [Part 3](#)), [Factoring 1](#)

Also posted: [Review for Quiz 2](#)

Class 3 - Monday, June 13

Lecture: the parabola $y=x^2$, [Radical Expressions](#), [Completing the square - part 4](#)

Also posted: [Review for Quiz 3](#), [Extra Credit Assignment 2](#)

Class 4 - Wednesday, June 15

Lecture: Functions (2.3), [Graphing parabolas](#), [The Pythagorean Theorem](#)

Class 5 - Thursday, June 16

Lecture: [Radical Equations](#), [Writing equations of lines](#)

Also posted: for your own review: [Basic percent problems](#), [Linear word problems](#)
[Exam 1 Review](#)

Class 6 - Monday, June 20

Lecture: Exam 1 Review, [Graphing parabolas 2](#), [Optimization](#) (3.1)

Also posted: [Answers for Quiz 3](#)

Class 7 - Wednesday, June 22

Exam 1

Class 8 - Thursday, June 23

Lecture: [Circles 1](#) (2.2), [Non-linear systems of equations](#) (5.5)

Also posted: [Review for Quiz 5](#), for your own review: [Quadratic word problems](#)

Extra Credit Assignment: Given two circles, if we subtract the equation of one circle from that of the other, do we ALWAYS get the equation of the line connecting the points where the circles intersect? Explain why this is true or false. (Also, the bonus problems from Exam 1 can still be turned in for extra credit.)

Class 9 - Monday, June 27

Lecture: Review of exponents, [Quadratic inequalities](#)

Class 10 - Wednesday, June 29

Lecture: Functions and their [domains](#) (2.3), [Logarithms 1](#) (4.3)

Also posted: [Review for Quiz 6](#)

Class 11 - Thursday, June 30

Lecture: [The Quadratic Formula](#), [Basic functions and their properties](#) (2.6, 4.1, 4.2)

Extra Credit Assignment:

- 1) Prove that $f(x)=x^3$ is a one-to-one function.
- 2) Use any operation any number of times and the number 2 exactly three times to obtain any natural number.

Class 12 - Wednesday, July 6

Lecture: [Logarithms 2](#) (4.3, 4.4)

Class 13 - Thursday, July 7

Lecture: Division of Polynomials, the Remainder Theorem (3.2, 3.3), [Exponential Equations](#) (4.5)

Also posted: [Exam 2 Information](#), [Exam 2 Review](#)

Extra Credit Assignment: There is a very difficult track in a mountain area, where the world record of driving a lap is 15 miles per hour average velocity. A race car driver announces that he intends to beat this record and run the course with an average velocity of 30 miles per hour. As he is driving, his progress is monitored. At the half of the track, his average velocity was 15 miles per hour. In spite of this, he arrives at the finish just a few seconds too late to have an average velocity of 30 miles per hour. His funeral was three days later. How did he die?

Class 14 - Monday, July 11

Lecture: Review for Exam 2, [Rational Inequalities](#) (1.7), leading terms of factored polynomials
Tangent Lines of parabolas ([by completing the square](#), or [using the discriminant](#))

Class 15 - Wednesday, July 13

Exam 2

Also posted: [Review for Quiz 8](#)

Class 16 - Thursday, July 14

Lecture: [Limits at Infinity](#)

Also posted: [Review for Quiz 9](#)

Class 17 - Monday, July 18

Lecture: [Graphing factored polynomials](#) (3.4), Holes and Vertical Asymptotes (3.5)

How to take the reciprocal of a graph

Also posted: [Graphing rational functions](#) (3.5)

Class 18 - Wednesday, July 20

Lecture: Graphing techniques (transformations) (2.7), Function Operations and Composition (2.8)

Also posted: [Review for Quiz 10](#)

Class 19 - Thursday, July 21

Lecture: [Graphing rational functions](#) (3.5), [Inverse Functions](#) (4.1)

Also posted: [Exam 3 Information](#), [Exam 3 Review](#)

Class 20 - Monday, July 25

Lecture: [Graphing rational functions](#) with end-behavior zero(3.5), [Inverse Functions](#) (4.1)

Class 21 - Wednesday, July 27

Final review

Class 22 - Thursday, July 28

Final Exam