

MATH 1301 – COLLEGE ALGEBRA

Math & Testing Success

"Be Mathematicious"....<http://www.youtube.com/watch?v=6cAs1YBELmA&feature=related>

"Feel Your Best" ... <http://www.youtube.com/watch?v=Zs-IeO31kZk&feature=related>

"Testing Strategies" ...<http://www.youtube.com/watch?v=fvS-h1ty8yo&feature=related>

Chapter 1- Introduction to Functions & Graphs

Preparing for Success:

- 1) [Study Habits 1](#)
- 2) [Study Skills 2](#)
- 3) [Be Mathematicious](#)
- 4) [Feel Your Best](#)
- 5) [Testing Strategies](#)

1.1 Numbers, Data and Problem Solving

- 1) [Classifying Real Numbers](#)
- 2) [Integer Rap](#)
- 3) [Polya's Problem Solving Method](#)
- 4) [STAR Problem Solving Song](#)
- 5) [Percent Change 1](#)
- 6) [Percent Change 2](#)

1.2 Visualization of Data Videos

- 1) [1.2 E-Book Video Lecture](#)
- 2) [Sets and Relations - Two Variables](#)
- 3) [Visual Representation of Domain and Range](#)

1.3 Functions and Their Representations

- 1) [Initial Definition of a Function](#)
- 2) [Functions and Vertical Line Test](#)
- 3) [Using Functional Notation](#)
- 4) [Understanding Functional Notation](#)
- 5) [Functions and Their Representations](#)
- 6) [Functions Video Lecture](#)

1.4 Types of Functions and Their Rates of Change.

- 1) [Library of Functions - Part 1](#)
- 2) [Library of Functions - Part 2](#)
- 3) [Slope Song](#)
- 4) [Slopes and Rates of Change](#)
- 5) [Slope-Intercept Form of a Line \$y=mx + b\$](#)
- 6) [Linear Versus Non-Linear Functions](#) (Expand Window to Full Screen or You Will Miss the Good Stuff)

1.5 Functions and Their Rates of Change

- 1) [Inequalities, Interval and Graphical Notation](#)
- 2) [Inequalities and Interval Notation](#)
- 3) [Definition of Increasing and Decreasing Functions](#)
- 4) [Reading Increasing, Decreasing and Constant Intervals on Graphs](#)
- 5) [Increasing and Decreasing Intervals](#) (Expand Window to Full Screen or You Will Miss the Good Stuff)
- 6) [Intervals of Increase and Decrease, Relative Maximum and Minimums](#)

Chapter 2 – Linear Functions and Equations

2.1 Linear Functions and Their Models

- 1) [Relations, Functions, Domain and Range](#)
- 2) [Domain of a Rational Function](#)
- 3) [Domain of a Radical Function](#)
- 4) [Domain and Range of a Function Graphically](#)
- 5) [Modeling with a Linear Function](#)
- 6) [Linear Functions](#)
- 7) [Modeling with Linear Equations](#)
- 8) [Piecewise-Defined Functions 1](#)
- 9) [Piecewise-Defined Functions 2](#)
- 10) [Piecewise-Defined Functions 3](#)
- 11) [Piecewise-Defined Functions 4](#)
- 12) [Evaluating Piecewise-Defined Functions](#)

2.2 Equations Of Lines

- 1) [Slope Dude](#)
- 2) [Understanding Postive, Negative, Zero, and Undefined Slopes](#)
- 3) [Mind Bite Points to Lines Introduction](#)
- 4) [Graphing Lines Summary](#)
- 5) [Graphing by Finding the X-and Y-Intercepts](#)
- 6) [Graphing Horizontal and Vertical Lines](#)
- 7) [Writing the Equations of Horizontal and Vertical Lines](#)
- 8) [Writing Equations of Lines Examples](#)
- 9) [Writing Equation of a Line Given Two Points](#)
- 10) [Using the Point-Slope Form Given Two Points](#)
- 11) [Parallel, Perpendicular, or Neither?](#)
- 12) [Parallel or Perpendicular to Another Given Line](#)
- 13) [Point-Slope Form to Find a Perpendicular Line](#)
- 14) [Using \$y = mx + b\$ form given two points \(Alternative Method\)](#)
- 15) [Summary of All Three Forms of a Line](#)
- 16) [Understanding Linear Functions](#)
- 17) [Recognizing Linear Functions](#)
- 18) [Functions and Their Representations](#)
- 19) [Graphs of Basic Functions](#)
- 20) [Linear Functions and Models](#)
- 21) [What is Direct Variation?](#)
- 22) [Direct Variation Introduction](#)
- 23) [Example of Direct Variation](#)
- 24) [Using Direct Variation to find the Cost of Gasoline](#)

2.3 Linear Equations

- 1) [**The Infamous Function Machine**](#)
- 2) [**Independent and Dependent Variables Song**](#)
- 3) [**Introduction to Functions and Relations**](#)
- 4) [**Slope-Intercept Form of a Line Real World Modeling**](#)
- 5) [Formulas](#)
- 6) [**Understanding Linear Functions**](#)
- 7) [**Recognizing Linear Functions**](#)
- 9) [**X Finds Out His Value**](#)
- 10) [**Solving One-Step Equations**](#)
- 11) [**What is a Zero of a Function?**](#)

2.4 - Solving Inequalities

- 1) [**Basic Inequalities Graphing with AND and OR**](#)
- 2) [**Solve and Graph Linear Inequalities**](#)
- 3) [**Solve and Graph Inequalities Examples**](#)
- 4) [**Solving a Three-part Inequality**](#)

2.5 - Absolute Value Equations and Inequalities

- 1) [**Basic Absolute Value Equations**](#)
- 2) [**Solving Absolute Value Equations and Inequalities**](#)
- 3) [**Solving Absolute Value Equations and Inequalities Examples**](#)
- 4) [**Math By Fives Absolute Value Inequalities**](#)
- 5) [**Equations Involving Absolute Value**](#)
- 6) [**Solving an Absolute Value Inequality with \$>\$**](#)

Chapter 3 – Quadratic Functions and Equations

- 1) [Parabolas-A Quick Look](#)
- 2) [Introduction to Parabolas and Quadratic Equations](#)
- 3) [Recognizing Quadratic Equations](#)
- 4) [Three Forms of Quadratic Equations](#)
- 5) [Exploring Quadratic Graphs](#)
- 6) [The Vertex and Axis of Symmetry](#)
- 7) [Parabolas - Interactive Activity](#)

3.1 Quadratic Functions and Models

- 1) [Exploring Dilations of Quadratic Equations](#)
- 2) [Completing the Square 1](#)
- 3) [Completing the Square 2](#)
- 4) [Completing the Square 3](#)
- 5) [Vertex Formula](#)
- 6) [Using the Vertex Formula to Complete the Square](#)
- 7) [Modeling with the Vertex Form - Interactive Activity](#)

3.2 Solving Quadratic Equations

- 1) [Vocabulary of Solving Quadratics](#)
- 2) [Zeros of Quadratic Equations by Factoring](#)
- 3) [Zeros of Quadratic Functions](#)
- 4) [Solving Quadratic Using the Zero Property and Factoring](#)
- 5) [Zero Property Interactive Activity](#)
- 6) [Quadratic Formula](#)
- 7) [Solving Quadratic Using Quadratic Formula](#)
- 8) [Square-Root Property](#)
- 9) [Solving by Completing the Square](#)
- 10) [Solving Quadratic Using Completing the Square](#)
- 11) [Square Root Property Interactive Activity](#)
- 12) [Modeling Application Interactive Activity](#)

3.3 Complex Numbers

- 1) [The Imaginary Number Movie](#)
- 2) [Introduction to the Complex Number System](#)
- 3) [Complex Numbers Part 1](#)
- 4) [Complex Numbers Part 2](#)
- 5) [Complex Number Operations](#)
- 6) [Complex Conjugates](#)
- 7) [Complex Number Lecture](#)
- 8) [Quadratic Equations with Complex Solutions](#)
- 9) [Subtracting Complex Numbers](#)

3.4 Quadratic Inequalities

- 1) [Solving and Graphing Quadratic Inequalities](#)
- 2) [Algebraic Solutions to Quadratic Inequalities](#)
- 3) [Common Mistake Solving Algebraic Quadratic Inequalities](#)
- 4) [Solving Polynomial Inequalities](#)

Chapter 4 – More Non-Linear Functions and Equations

4.1 - More Non-Linear Functions

- 1) [**Introduction to Polynomials 1**](#)
- 2) [**Introduction to Polynomials 2**](#)
- 3) [**Recognizing Polynomials**](#)
- 4) [**Evaluating Polynomials**](#)
- 5) [**Understanding Functional Notation**](#)
- 6) [**Identifying Extrema 1**](#)
- 7) [**Identifying and Describing Extrema 2**](#)
- 8) [**Understanding Extrema 3**](#)
- 9) [**Extrema Graphically by Leading Term**](#)

4.2 - Polynomial Functions & Models

- 1) [**Graphs of Polynomial Functions**](#)
- 2) [**End Behavior of Polynomials Intro 1**](#)
- 3) [**End Behavior of Polynomials 1**](#)
- 4) [**End Behavior of Polynomials 2**](#)
- 5) [**End Behavior of Polynomials 3**](#)
- 6) [**Degree, Turning Points and End Behavior**](#)
- 7) [**Turning Points, X-Intercepts, and Graphs**](#)
- 8) [**Making the Connection - Zeros, Solutions, and X-intercepts**](#)
- 9) [**Introduction to Piecewise Graphs**](#)
- 10) [**Graphing Piece-Wise Functions**](#)

4.5 Fundamental Theorem of Algebra

- 1) [**Fundamental Theorem of Algebra 1**](#)
- 2) [**Understanding the Fundamental Theorem of Algebra 2**](#)
- 3) [**Finding Polynomials Using the Zeros**](#)
- 4) [**Imaginary Solutions Animation Link**](#)

4.7 Variation

- 1) [**Introduction to Variation**](#)
- 2) [**Direct and Inverse Variation 1**](#)
- 3) [**Direct and Inverse Variation 2**](#)
- 4) [**Direct Variation Example 1**](#)
- 5) [**Variation Examples 2**](#)
- 6) [**Inverse Variation Animation Link**](#)

Chapter 5 – Exponential and Logarithmic Functions

5.1 The Algebra of Functions

- 1) [Combining Functions Using Addition \(Sum\)](#)
- 2) [Combining Functions Using Subtraction \(Difference\)](#)
- 3) [Combining Functions Using Multiplication \(Product\)](#)
- 4) [Combining Functions Using Division \(Quotient\)](#)
- 5) [Composition of Functions](#)

Chapter 5.2 Inverse Functions

- 1) <http://www.youtube.com/watch?v=YdRXbUIM8KQ>
- 2) <http://www.youtube.com/watch?v=Gtly4wRrLuc&feature=related>
- 3) <http://www.youtube.com/watch?v=8VfIhXtZH5k&feature=related>
- 4) <http://www.youtube.com/watch?v=dBKM7E0-kKY>

5.3 Exponentials and 5.4 Logarithmic Expressions and Models

- 1) <http://www.youtube.com/watch?v=xp1TeBfkLPg>
- 2) <http://www.youtube.com/watch?v=pcKtySwy1aM>
- 3) <http://www.youtube.com/watch?v=MSsginPd5ZA&feature=relmfu>
- 4) <http://www.youtube.com/watch?v=FXbNeYCxZ8s&feature=relmfu>
- 5) <http://www.youtube.com/watch?v=6kHo9Strr7s&feature=fvsr>
- 6) <http://www.youtube.com/watch?v=KmIK6qYNpAU>
- 7) <http://www.youtube.com/watch?v=szWwTZoH3-8>
- 8) <http://www.youtube.com/watch?NR=1&v=2hIfnw6Yhgo>
- 9) http://www.youtube.com/watch?v=TOoXH_IwUx0&feature=related

5.5 Properties of Logarithms

- 1) <http://www.youtube.com/watch?v=4HftR1d8laU&feature=related>
- 2) http://www.youtube.com/watch?v=F_kzYq8WghE&feature=related
- 3) <http://www.youtube.com/watch?v=fFeZuvi7vpY&feature=related>
- 4) <http://www.youtube.com/watch?v=YuzHFzn2F38&feature=related>
- 5) <http://www.youtube.com/watch?v=Sxy0ZYFgAPE&feature=related>
- 6) http://www.youtube.com/watch?v=LJ0RtM_QpMw&feature=related

5.6 Solving Exponential and Logarithmic Equations

- 1) <http://www.youtube.com/watch?v=U125h7w-iiA&feature=related>
- 2) <http://www.youtube.com/watch?v=YML1Lf-apLU&feature=related>
- 3) <http://www.youtube.com/watch?v=XEv1eit51xk>
- 4) <http://www.youtube.com/watch?v=FZJiygIrG4&feature=related>
- 5) http://www.youtube.com/watch?NR=1&v=djR8DkQ_UUO
- 6) <http://www.youtube.com/watch?v=vq06fO-ZFQM&feature=related>

Chapter 6 – Systems of Equations

6.3 Systems of Equations in Three Variables

- 1) [**Solving Systems of Equations Song**](#)
- 2) [**Graphical Solutions to Systems of Equations 1**](#)
- 3) [**Graphical Solutions to Systems of Equations 2**](#)
- 4) [**Substitution Method for Systems of Equations 1**](#)
- 5) [**Substitution Method for Systems of Equations 2**](#)
- 6) [**Elimination/Addition Method for System of Equations 1**](#)
- 7) [**Elimination/Addition Method for Systems of Equations 2**](#)
- 8) [**Elimination/Addition Method for Systems of Equations 3**](#)
- 9) [**Solving Systems of Three Equations by Elimination 1**](#)
- 10) [**Solving Systems of Three Equations by Elimination 2**](#)

FINAL EXAM REVIEW VIDEO LINK

<http://cms.uhd.edu/gep/algebra> (click on video recording – last entry on MATH 1301 page)