

MA145: College Algebra

Baker University — Spring 2023

Exam 1 — Equations, Inequalities, and Modeling

Wednesday, 25 January 2023

- real numbers
 - classification of real numbers
 - order of operations of expressions
 - properties of real numbers

Friday, 27 January 2023

- real numbers
 - evaluating expressions
 - simplifying expressions
- exponents
 - properties of exponents
 - simplifying expressions
 - scientific notation
- radicals
 - properties of radicals
 - simplifying expressions
- complex numbers
 - imaginary numbers
 - arithmetic of complex numbers

Monday, 30 January 2023

- polynomials
 - properties of polynomials
 - arithmetic of polynomials
 - factoring polynomials

- factoring polynomials
 - factoring by grouping
 - factoring by AC Method
 - factoring a difference of squares
 - factoring a sum of cubes

- syllabus quiz

Wednesday, 1 February 2023

- rational expressions
 - simplifying expressions
 - arithmetic of rational expressions

Friday, 3 February 2023

- rectangular coordinates
 - plotting points in the Cartesian plane
 - graphing by plotting points
 - x - and y -intercepts of graphs
 - the Distance Formula
 - the Midpoint Formula

Monday, 6 February 2023

- linear equations in one variable
 - solving linear equations in one variable
 - the three forms of a line
 - horizontal and vertical lines
 - parallel and perpendicular lines
 - finding the equation of a line

Wednesday, 8 February 2023

- modeling with linear functions
 - setting up word problems
 - solving word problems

Friday, 10 February 2023

- quadratic equations in one variable
 - solving by factoring
 - solving by the square root

- solving by completing the square
- solving by the Quadratic Formula

Monday, 13 February 2023

- solving equations with rational exponents
- solving absolute value equations
- solving rational equations in one variable

Wednesday, 15 February 2023

- solving rational equations in one variable

Friday, 17 February 2023

- linear inequalities
 - interval notation
 - properties of inequalities
 - solving inequalities algebraically
- absolute value inequalities

Monday, 20 February 2023

- Exam I review

Wednesday, 22 February 2023

- **Exam I**

Exam 2 — Functions and Graphing

Friday, 24 February 2023

- functions
 - function notation
 - representations of functions
 - evaluating functions
 - the Vertical and Horizontal Line Tests

Monday, 27 February 2023

- functions
 - domain and range
 - set notation
 - graphs of common functions

Wednesday, 1 March 2023

- functions
 - piecewise functions
 - average rate of change
 - local and absolute extrema

Friday, 3 March 2023

- function operations
 - arithmetic of functions
 - composition of functions
- inverse functions
 - testing and verification of inverse functions
 - domain and range
 - finding an inverse function algebraically

Monday, 6 March 2023

- transformation of functions
 - vertical and horizontal shifts
 - compression and stretching
 - reflections and symmetries

Wednesday, 8 March 2023

- Exam II review

Friday, 10 March 2023

- **Exam II**

Exam 3 — Polynomial and Rational Functions

Monday, 20 March 2023

- linear functions
 - slope-intercept form
 - point-slope form
 - applications and modeling

Wednesday, 22 March 2023

- quadratic functions

- characteristics of quadratic functions
- forms of quadratic functions
- domain and range

Friday, 24 March 2023

- quadratic functions
 - local and absolute extrema
 - x - and y -intercepts
 - modeling with quadratic functions

Monday, 27 March 2023

- power functions
 - identification and properties
 - end behavior
- polynomial functions
 - local and absolute extrema
 - end behavior
 - x - and y -intercepts

Wednesday, 29 March 2023

- graphing polynomial functions
 - multiplicity of roots
 - end behavior
 - x - and y -intercepts
 - turning points
- the Intermediate Value Theorem

Friday, 31 March 2023

- division of polynomials
 - polynomial long division
 - synthetic division

Monday, 3 April 2023

- zeros of polynomials
 - the Remainder Theorem
 - the Factor Theorem

- the Rational Roots Theorem
- the Fundamental Theorem of Algebra
- Descartes’s Rule of Signs

Wednesday, 5 April 2023

- rational functions
 - x - and y -intercepts
 - domain and range
 - vertical and horizontal asymptotes

Monday, 10 April 2023

- graphing rational functions

Wednesday, 12 April 2023

- inverse and radical functions
 - restricting the domain of a polynomial
 - solving for an inverse function

Friday, 14 April 2023

- direct and inverse variation

Monday, 17 April 2023

- Exam III review

Friday, 21 April 2023

- **Exam III**

Final Exam — Exponential and Logarithmic Functions

Monday, 24 April 2023

- exponential functions
 - properties of exponential functions
 - exponential growth and decay
 - applications and modeling

Wednesday, 26 April 2023

- graphs of exponential functions

Friday, 28 April 2023

- logarithmic functions

- properties of logarithmic functions
- converting between exponential and logarithmic equations
- computing with logarithms

Monday, 1 May 2023

- graphs of logarithmic functions

Wednesday, 3 May 2023

- properties of logarithms
 - Product and Quotient Rule for Logarithms
 - Power Rule for Logarithms
 - expanding and contracting logarithmic expressions

Friday, 5 May 2023

- solving exponential equations
- solving logarithmic equations

Monday, 8 May 2023

- Final Exam review

Wednesday, 10 May 2023

- Final Exam review

Friday, 12 May 2023

- Final Exam review

Wednesday, 17 May 2023

- **Final Exam, 1:00 to 4:00 PM; Mulvane 211**