

## FINAL REVIEW

### Intro to Algebra 2

- solve systems of equations
- solve absolute value equations and inequalities
- exponent rules
- work with rational exponents

### Chapter 1: Functions and their graphs

- find x and y-intercepts
- graph and write linear equations
- determine whether relations are functions
- use function notation
- state the domain of a function
- find the zeros of functions
- determine the average rate of change of a function
- identify even and odd functions
- identify and graph parent functions
- use shifts and reflections to sketch graphs of parent functions
- add, subtract, multiply, divide functions
- find the composition of functions
- find inverse functions
- verify that two functions are inverse functions

### Chapter 2: Polynomial and rational functions

- write quadratic functions in standard form and sketch graph
- state the max or min of a quadratic
- sketch graphs of polynomial functions
- find and use zeros as sketching aids
- use long or synthetic division
- work with the imaginary unit  $i$
- find complex solutions of quadratic equations
- find all zeros of a polynomial function
- state the domain of a rational function
- find the vertical, horizontal or slant asymptotes of rational functions
- sketch the graphs of rational functions

### Chapter 3: Exponential and logarithmic functions

- sketch exponential functions with base  $a$  or  $e$
- sketch log functions and natural log functions
- evaluate logarithmic functions
- solve exponential and log equations
- use the change of base formula
- use properties of logs to evaluate log expressions or solve log equations
- use exponential growth and decay functions

### Binomial Theorem

- use the binomial theorem to write binomial expansions

### Arithmetic and Geometric Sequences

- Recognize, write, and find the  $n$ th terms of arithmetic and geometric sequences
- Find  $n$ th partial sums of arithmetic and geometric sequences

### Chapter 8: Matrices

- identify the dimensions of a matrix
- add, subtract, and multiply matrices
- find the determinant of a  $2 \times 2$  or  $3 \times 3$  matrix
- use a formula to find the inverse of a  $2 \times 2$
- use a GDC to find the inverse of a  $3 \times 3$
- use matrices to solve systems in two or three variables

### Chapter 4: Trigonometry

- use radian and degree measure
- find the arc length, radius, or central angle of a circle
- evaluate trig functions using reference angles and the unit circle
- find the area of a sector of a circle
- use amplitude and period to sketch the graphs of sine and cosine
- sketch translations of the graphs of sine and cosine
- write an equation of a sine or cosine graph
- recognize graphs of  $\tan$ ,  $\cot$ ,  $\sec$ , and  $\csc$

### Chapter 5: Analytic trig

- recognize and write the fundamental identities
- use the fundamental identities to simplify trig expressions and verify identities
- use basic algebraic techniques to solve trig equations
- solve trig equations having double angles
- use inverse trig functions to solve trig equations

### Chapter 6: Triangles and trigonometry

- solve right triangles using trig functions and the Pythagorean theorem
- use the law of cosines to solve oblique triangles (SAS, SSS)
- use the law of sines to solve oblique triangles (AAS, ASA)
- check for ambiguous case when using the law of sines to solve for an angle
- find the area of a triangle