Honors PreCalculus Final Exam Study Guide.

Bring to the exam: writing implement ,calculator, and a maximum of 2 pages of notes.

Chapter 1 Functions and graphs

Writing linear equations, slope, parallel, perpendicular lines.

Functions and relations. Function notation. Domain and range.

Evaluate difference quotients.

Vertical and horizontal line test. One to one functions and inverses.

Step functions and piecewise functions.

Even and odd functions.

Rigid and nonrigid transformations.

Add, subtract, multiply and divide functions.

Composition of functions.

Linear regression.

Chapter 2 Polynomial and rational functions

Analyze graphs of quadratic functions.

Write quadratics in standard form.

Use transformations to sketch graphs

Find zeros of polynomial and rational functions

End behavior of polynomial and rational functions.

Polynomial long division

Synthetic division.

Finding possible rational roots of polynomial functions.

Descartes’s rule of signs to find positive and negative roots.

Imaginary numbers, complex numbers and operations. Complex conjugates.

Domains of rational functions.

Vertical, horizontal and slant asymptotes of rational functions.

Quadratic, cubic and quartic regression.

Chapter 3 Exponential and logarithmic functions

Recognize and graph exponential and logarithmic functions.

Definition of log.

Rewrite log equations in different bases.

Properties of logs.

Solve exponential and logarithmic equations.

Log and exponential regression.

Chapter 4 Trigonometric Functions

Angles in standard position. Coterminal angles.

Radians to degrees, degrees to radians.

Unit circle!. Evaluate all 6 trig functions.

Graphs of trig functions. Domain and range of trig functions.

Period, amplitude (sin and cos) phase shift. and vertical shifts.

Use reference angles to evaluate trig functions.

Inverse trig functions

Applications of right triangle trig including bearings

Chapter 5 Analytical Trigonometry

Fundamental identities

Verifying identities

Solving trig equations

Sum and difference formulas

Double and half angle formulas

Chapter 6 Oh Joy!! More Trigonometry

Law of sines, including the ambiguous case

Law of cosines

Vectors

Trig form of complex numbers and deMoivre’s Theorem

Chapter 8 Sequences and Series

Arithmetic sequences and partial sums

Geometric sequences and series

The Binomial Theorem

Counting principles- nCr, nPr, n!

Chapter 9 Conic Sections

Parabolas

Ellipses

Hyperbolas