

PURDUE UNIVERSITY
STUDY GUIDE FOR MA 15800 – PRECALCULUS – Functions and Trigonometry
For Students Who Plan To Obtain Credit in MA 15800 By Examination

This Study Guide describes briefly the topics to be mastered prior to attempting the examination in Precalculus – Functions and Trigonometry. The material can be studied from many of the books on the market, or through online resources. Books and online resources entitled Precalculus, Functions, or Algebra and Trigonometry will normally contain most or all of the topics listed below, checking a table of contents is a good idea. **All of the topics are found in the current text for MA15800**, Algebra and Trigonometry with Analytical Geometry by Swokowski/Cole, Classic 12th Edition, Brooks/Cole (2010).

IMPORTANT:

- 1. If you plan to establish credit by examination, read this material thoroughly.**
2. Study all the material and topics in the outline below.
3. Work many practice problems.
4. When you are prepared for it, use the Practice Problems as a sample examination. However, the actual Credit Exam will only have 30 problems on it and will be a 2 hour exam.
5. The Practice Problems and the formula sheet that will be attached to the exam when you take the Credit Exam are located in the MA158 information on the Course Credit webpage:
www.math.purdue.edu/academic/undergrad/credit
6. When you believe your preparation to be completed, go to your academic advisor, obtain a credit-exam request form, and follow the instructions therein.
7. A one-line scientific calculator is required when you take the exam (**single-line display**, non-programmable, non-graphing). View example pictures of good and bad calculators on the archived Fall 2011 MA159 webpage: www.math.purdue.edu/academic/files/courses/2011fall/MA15900

TOPICS LIST – Corresponding to topics in the current textbook listed above.

NOTE: Basic College Algebra topics are not included here and are considered prerequisite knowledge for MA15800, but earlier sections in the above listed current textbook are certainly foundational topics for many of these topics listed for MA15800.

FUNCTIONS AND GRAPHS – definition of function, domain of functions, increasing/decreasing functions, applications of functions, graphs of functions, graphical transformations, piece-wise defined functions, quadratic functions, function operations, composition of functions.

POLYNOMIAL AND RATIONAL FUNCTIONS – graphing polynomial and rational functions, applications of polynomial and rational functions, polynomial long division, finding polynomial and rational functions given information.

INVERSE, EXPONENTIAL, AND LOGARITHMIC FUNCTIONS – inverse functions; graphs of inverse, exponential, and logarithmic functions; applications of inverse, exponential, and logarithmic functions; properties of logarithms; solving exponential and logarithmic equations.

TRIGONOMETRIC FUNCTIONS – angles in radians and degrees, trigonometric functions of angles and real numbers, values of trigonometric functions, inverse trigonometric functions, graphs of trigonometric functions, fundamental trigonometric identities, solving trigonometric equations, double-angle formulas, applications of trigonometric functions involving right triangle, law of cosines, polar coordinates, polar equations, graphs of polar equations.

SYSTEMS OF EQUATIONS – systems of equations in 2 or more variables, graphing systems of equations, applications of systems of equations.