

# MATH175-Pre-Calculus Study Skills Workshop

## Learn Better, Learn Smarter!



“If I have ever made any valuable discoveries, it has been due more to patient attention, than to any other talent”  
— Isaac Newton

# Are You Ready for Class Today?

*Begin at the beginning...*

For peak performance level learning, you must:

- Take care of yourself physically and emotionally
- Maintain a positive attitude towards learning difficult concepts
- Be committed to learning new vocabulary and concepts
- Keep up with homework
- Have the class book and tools readily available
- Be prepared for class lectures
- Study to comprehend the information
- Ask other students in the class for help when you need it

## **Are you ready for class today?**

Take the assessment to evaluate if you are prepared:

<https://tinyurl.com/areyoureadyforclasstoday>



# What is Pre-Calculus?

## Pre Calculus Definition

- Pre-calculus is the study of the mathematical prerequisites for calculus, including algebra, trigonometry and analytical geometry
- The unusual thing about pre-calculus topics is that they don't directly involve calculus. Instead, they give students a strong foundation that will be used throughout their calculus studies
- Pre-Calculus bridges Algebra II and Calculus. Pre-calculus involves graphing, dealing with angles and geometric shapes such as circles and triangles and finding absolute values
- Pre-calculus concepts rely on a strong background in algebra II and trigonometry

# Learn the Language

Pre-calculus has its own unique terminology  
You will become familiar with this language over time

## **Memorize the vocabulary by:**

Keeping a vocabulary list in a specified notebook  
Updating it when necessary in class and from the book  
Making flash cards and testing yourself often  
Studying the vocabulary list on a regular basis  
Rewriting your list from time to time to test your knowledge  
Focusing on those words you do not know (fill in the gaps)

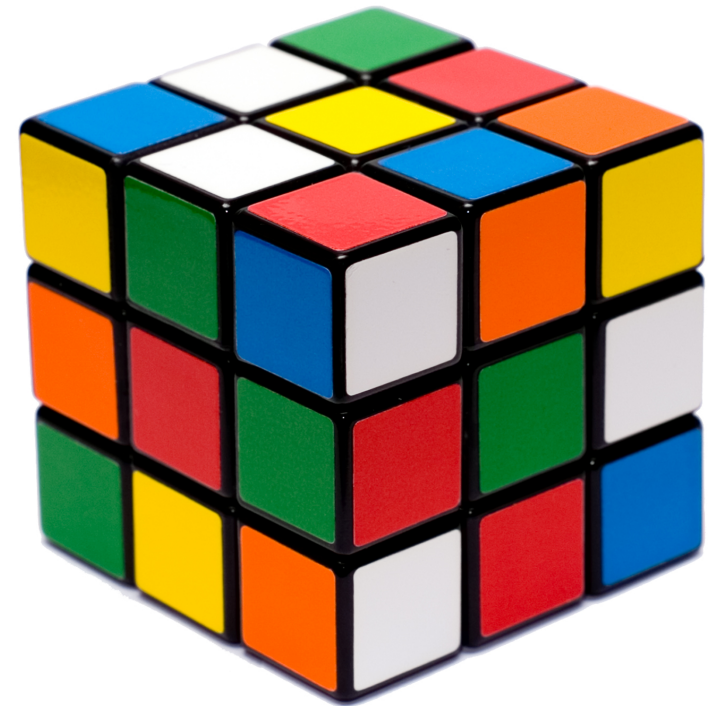
Whatever you do, do not dismiss pre-calculus vocabulary

[Precalculus \(themathpage.com\)](http://themathpage.com)



# What you need for Pre-Calculus

- Graphing calculator
- Graph paper
- Book, pencils, paper to do problems on
- A good attitude
- Time to study
- Time to let concepts sink in
- An open mind to new concepts
- A study partner or a study group
- Access to your instructor



# Graphing Calculator

A graphing calculator is a handheld calculator

It plots graphs

It solves equations

It performs many other tasks with variables

You will use the graphing calculator every day

It is an important tool you will learn to understand



# Don't Cram

Unlike some subjects, success in pre-calculus is not completely based on memorization

You need time to read about and understand concepts

You need time to let concepts sink in

So, give yourself that time



# Review Trigonometry Study Materials

During pre-calculus studies, you can expect to solve and graph problems using standard trig functions like sine and cosine

Additional trig topics covered in pre-calculus include vector operations, sequences and series

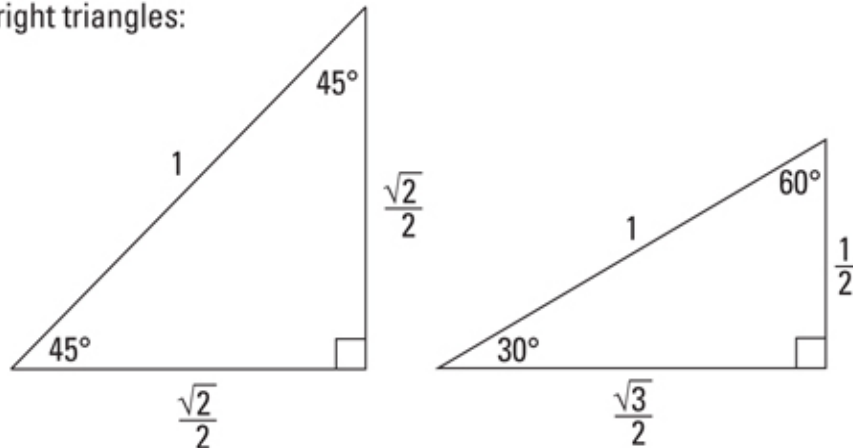
## Right Triangles and Trig Functions for Pre-Calculus

If you're studying pre-calculus, you're going to encounter triangles, and certainly the Pythagorean theorem. The theorem and how it applies to special right triangles are set out here:

**Pythagorean theorem:**  $(\text{leg})^2 + (\text{leg})^2 = (\text{hypotenuse})^2$

$$\sin\theta = \frac{\text{opp}}{\text{hyp}} \quad \cos\theta = \frac{\text{adj}}{\text{hyp}} \quad \tan\theta = \frac{\text{opp}}{\text{adj}}$$

Special right triangles:





# Brush Up on Your Algebra I and II

Citrus College instructors say strong algebra skills are a big part of success in pre-calculus.

Pre-calculus covers commonly used algebraic functions such as:

quadratic

exponential

polynomial

logarithmic

- Knowing how to graph functions are a key part of pre-calculus since graphs are used throughout calculus
- You need to know the domain and range of functions
- Also how to find the intervals over which a function increases or decreases
- And how to solve transformations on a function



# Practice

Math175 is a 6 unit class

6 units x 2 hours of study per unit = 12 hours a week of study time

Depending on your comprehension, plan to study a minimum of 2-3 hours a night



# Study Area Analysis

Where you study is as important as how much you study. If you study in the kitchen and people are in and out, more than likely you are not focusing very well. Likewise, if you are studying in bed and you keep drifting off into sleep, not a lot of information is getting into your brain.

## **Survey:**

Click the survey link below to see how your study areas help you or hinder you from studying effectively.

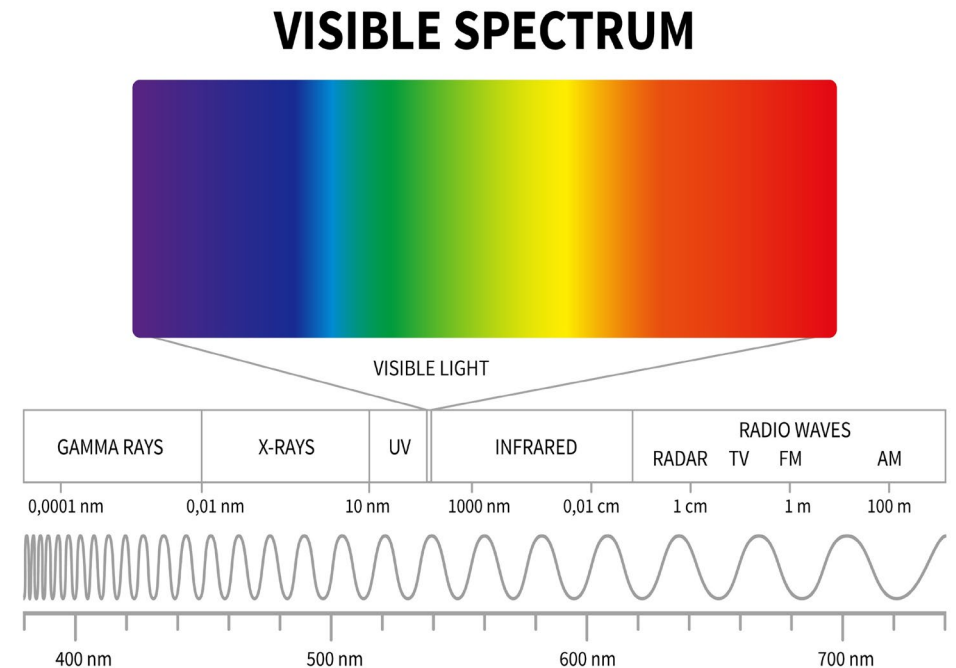
<https://tinyurl.com/Studyareaanalysis>



# How to Study Math 101

- Read the textbook and review previous lecture notes before each class
- Review concepts learned in the previous math classes before beginning a new one
- Copy examples your instructor writes on the board into your notes
- List the step-by-step process required to solve these problems
- Do not put off homework, study at the same time every day
- Avoid missing class
- Complete practice problems listed in the textbook
- Memorize formulas and vocabulary
- Organize a study group
- Get assistance when needed from the STEM Center

<https://www.collegeatlas.org/math-study-tips.html>



# Studying for a Math Test

Study throughout the semester by keeping to a strict study schedule

(Take the Early Alert Time Management Workshop [Time Management Workbook \(citruscollege.edu\)](https://citruscollege.edu/time-management-workbook))

Participate in review sessions organized by the instructor and/or classmates

Prepare for tests by:

- Memorizing mathematical formulas
- Studying textbook practice questions and tests
- Reviewing lecture notes
- Working through various types of problems

If possible, obtain practice tests from previous years

Since most tests are timed, practice timed problems

Work through problems missed on quizzes

Arrange for a few longer study sessions with your study group



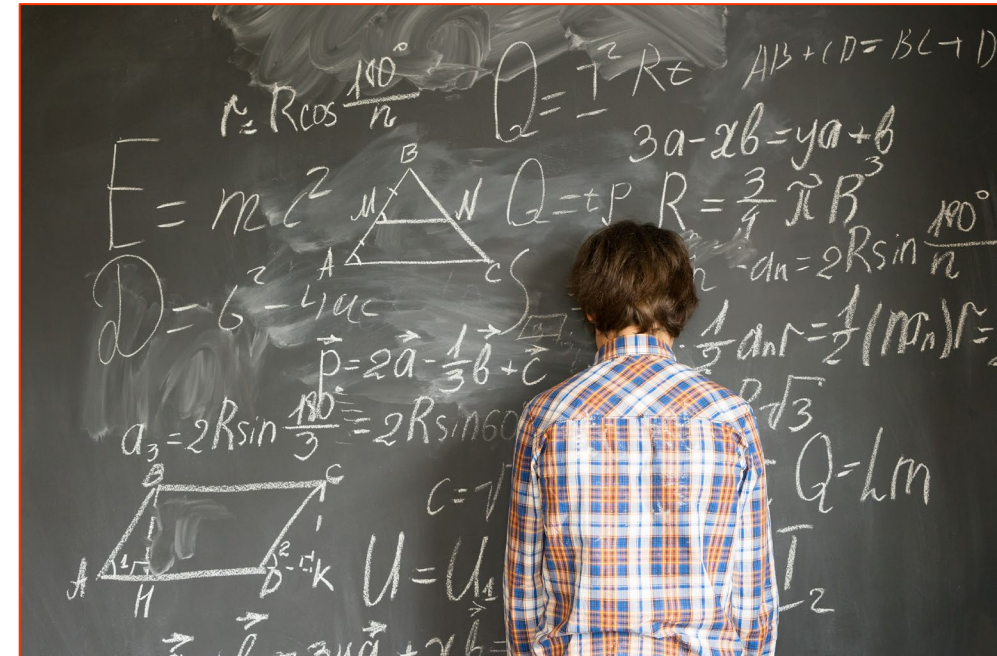
# Math Tests Tips

- Do not neglect sleep the night before test day. Grogginess affects mental processing
- Be fed and drink water, avoid stimulants and sugar
- Get to class on time or early and maintain a positive attitude, stay away from complainers
- Write formulas in test margins immediately after receiving the test
- Complete simple problems first to save time for more difficult ones
- Stay positive while working through difficult problems  
(Follow the step-by-step process you practiced while studying)
- Always show your work since professors often give partial credit
- Do not compare your completion rate to anyone else's
- Pace yourself and remember to breathe



# What Do I Do After a Math Test?

- Review missed problems once your test is returned to you
- Re-work missed problems since final exams are typically comprehensive
- Work with your study group on those problems you missed
- Make an appointment with your math professor during office hours
- Go to the STEM Center for one on one help
- Start preparing for the next exam



# The Benefits of Study Groups

**Accelerate your learning with a study group!**

**The benefits are that you:**

- Improve understanding while talking through math problems
- Familiarize yourself with the math vocabulary
- Discuss concepts and problem solving
- Quiz each other and learn more quickly
- Make new friends and succeed together
- Work on problems together
- Compare notes





# Pre-calculus Review

- Complete homework immediately after class while lecture concepts are fresh in your mind
- Set aside 2-3 hours each day to work on pre-calculus assignments
- Review lecture notes and work through example problems from class and from the book
- Organize and attend study groups with classmates
- Receive help from peer tutors in the STEM Center
- Do not move on to a new set of problems until you fully comprehend those you are currently working on
- Complete all assigned homework problems and complete extra ones too
- Thoroughly read word problems
- Draw visual aids and diagrams to understand confusing or complicated word problems
- Maintain a vocabulary list and study it often
- Ask for help when you need to
- Maintain a good attitude and a positive disposition



# Get Help When You Need It

Center hours are:

Monday through Thursday, 9 a.m. to 7 p.m.

Friday, 9 a.m. to 2 p.m.

Sign in for STEM tutoring

[Microsoft Word - Logging in to Microsoft Teams.docx](#)  
([citruscollege.edu](http://citruscollege.edu))

[Drop-In Tutor Schedule](#) available online

[STEM Center Study Sessions](#) available on line

Check out Stem Center at: [www.citruscollege.edu](http://www.citruscollege.edu)

Or contact them through: [mycitruscollege.edu](http://mycitruscollege.edu)

For more information, contact the STEM Center coordinator at (626)  
914-8724.

