

[TRIGONOMETRY EXAM I REVIEW TOPICS]

(use this to make sure you are ready)

Below are the topics that we have covered in class for chapter 6. I bulleted the major concepts of each of the sections as well as included the page number that the subchapter starts on.

(chapter 6) – Trigonometric Functions

(6.1) – Angles and their measure (page 453)

- Know the anatomy of an angle
 - Initial side, terminal side, positive, negative, acute, obtuse, etc...
- Know the different ways to measure an angle
 - Degrees
 - DMS notation
 - Radians
- Be able to convert between degrees and radians
- Know the arc length formula, sector area formula, and formulas for angular velocity and linear velocity (remember that for arc length and sector area that your angle *must* be measured in radians)

(6.2) – Right Triangle Trigonometry (page 466)

- Know the six trigonometric ratios in relation to certain sides of a right triangle
- Be able to “solve a triangle” (find it’s side lengths)
- Understand how to apply right triangle trig to basic real world scenarios (angle of elevation/depression, height of an object, etc...)
- Know how to use 30-60-90 and 45-45-90 triangles to find some exact values of trig functions
- Know how to use 30-60-90 and 45-45-90 triangles to find the side lengths of other similar triangles

(6.3) – Sine and Cosine (The Unit Circle) (page 480)

- Know the Unit Circle – and never forget it. Become *one* with the Unit Circle (pun intended)
- Know how to use the Unit Circle to find exact values of sine and cosine
- Know what the graphs of sine and cosine (and by extension, all sinusoidal graphs) look like (including domain and range)

(6.4) – Other Trigonometric Functions & Their Graphs (page 498)

- Know how sine and cosine generate the other four trig functions.
- Know how to use the Unit Circle to find exact values of tangent, cotangent, secant, and cosecant
- Know the reciprocal identities and quotient identities (page 501)
- Know what the graphs of tangent, cotangent, secant, and cosecant look like
- Be able to find values of the six trig functions given information about one or two of the functions (problems like #38 on page 511)

(6.5) – Graphing Trigonometric Functions (page 513)

- Know how a , b , c , and d affect the graph of sine and cosine for

$$f(x) = a \sin(b(x - c)) + d \quad \& \quad f(x) = a \cos(b(x - c)) + d$$

- Be able to find the amplitude, period (wavelength), phase shift, and V-shift of functions written in the form above

(6.5 cont...)

- Be able to graph functions written in the form on the previous page by manipulating the original table of values for sine and cosine
- Know what simple harmonic motion is
- Understand the formula to find wavelength (period) and how it relates to frequency
- Understand how to model simple harmonic motion with $s(t) = a \cos bt$ or $s(t) = a \cos(2\pi Ft)$

(6.6) – Inverse Trigonometric Functions (page 529)

- Understand the normal properties of inverse functions
- Know how to find values of inverse trig functions
 - Understand that the input for an inverse trig function is a real number, and it's output is an angle measurement
- Know what the graphs of the inverse trig functions look like and how they are reflections of their counterparts over the line $y = x$
 - **Know the domains and ranges of the inverse functions**
 - **Know the restrictions on the domains of the original six trig functions**
- Know how to solve for angle measurements in right triangles using inverse trig functions
- Know how to find trig functions in terms of a variable given another trig function (problems like #35-44 on page 541)
- Know how to apply these functions to basic real-world problem solving

(Notecard worthy information) – just a small sample of things you may want to put on the notecard.

- Formulas
- Any example problems you feel would be useful
- I would not include the unit circle – you should already know it!
- Ratios of the sides for 30-60-90 & 45-45-90 triangles
- Etc...

(Additional Thoughts)

There is only 50 minutes to take the exam – so clearly I won't be able to put ALL of the stuff on this review on the exam itself. There are 4 main resources I use for my exams:

- i) Notes
- ii) Homework
- iii) Review
- iv) Quizzes

Please make sure you are as ready as you can be! My general advice is to **put yourself into a testing situation before the exam**. I think that a lot of students may study for an exam, but never actually set aside 50 minutes to do 16 or 17 problems – forcing them to be in a timed situation. That would be analogous to running a race but never running a practice race, or a tempo run. **Make sure you try to do a set amount of problems in 50 minutes** – that way when you get to the exam, the time constraint isn't so much stress!