

Section 7.1 Learning Objectives:

- Video 1: Review of the Identities (2:45)
 - State the three versions of the Pythagorean identity.
 - State the negative angle identities.
 - State the reciprocal identities.
- Video 2: Solving by Factoring (12:59)
 - Apply the trigonometric identities to solve trigonometric equations by factoring.
- Video 3: Solving with the Quadratic Formula (6:06)
 - Apply the trigonometric identities to solve trigonometric equations using the quadratic formula.

Individual Learning Objective Binder Check: Before class, you should have completed the Learning Objective Worksheet for each of the learning objectives in the video. These should have been placed in a binder in an organized manner so that it can be quickly checked by the instructor. If you have specific questions, this is a good time to ask the professor about them. While you are waiting for the professor to make their way around the room, you can work on the rest of the activities.

Group Practice Problems: In a group of no more than 3 students, work on the following problems. While everyone in the group should work together, each student should write out their work for themselves. This work can prove to be helpful when working on the homework assignment. If questions arise as you're working on these problems, feel free to seek help from the instructor or other groups of students.

Group Practice Problems #1 - Basic Applications of the Identities: Simplify the following expressions. Describe your steps and state the identities that you have used.

- $\frac{\tan(\theta)}{\cos(-\theta)} (1 - \sin^2(\theta))$
- $-\frac{\sin(\theta)}{\cos^2(\theta)} \tan(-\theta) (\csc(\theta) + 1) \left(\frac{1}{\sin(\theta)} - 1 \right)$

Group Practice Problems #2 - Solving Equations: Find all solutions to the equations, then list the solutions in the interval $[0, 2\pi)$. Describe your steps and state any identities that you use.

- $2 \sin^2(t) + \sin(t) = 0$
- $3 \sec^2(t) - 5 \sec(t) - 2 = 0$

Group Practice Problems #3 - Solving Equations: Find all solutions to the equations, then list the solutions in the interval $[0, 2\pi)$. Describe your steps and state any identities that you use.

- $\sec(\theta) = 2 \cos(\theta)$
- $\sin^2(t) = \cos(t)$
- $9 \sin(w) - 2 = 4 \sin^2(w)$

Group Work Check: Present your work for the practice problems to the instructor for approval. The work will not be graded deeply, but simply graded on whether it appears that you have put in a good faith effort to do the work. If you are not confident about particular problems, this is a good time to ask about them.

Section 7.1 Homework:

- 7.1 (General Problems): #1, 3, 5, 9, 13, 17, 21, 25, 29, 33
- 7.1 (Write-Up): #37, 39