

Unit 5

In this unit you will learn more about the trigonometric functions. In order to use them for solving real-world problems, you need to know more about their relationships with each other through the various trigonometric identities.

- Basic identities, including Pythagorean identities (7.3)
- Identity verification and disproving false identities (7.3)
- Sum and difference formulas (7.4)
- Cofunction identities (identities 3(a) and 3(b)) (7.4)
- Double-angle and half-angle formulas (7.5)
- Product-to-Sum Formulas (7.6)
- Sum-to-Product Formulas (7.6)

You will need to memorize the following formulas:

- Basic Identities (pages 446 in section 7.3)
- Sum, difference, and cofunction identities for sin and cos (formulas 1-5 in section 7.4)
- Double-angle and half-angle identities for sin and cos (formulas 1-4, 6, 7, 10ab in section 7.5)

Study Guidelines for the 8th edition of Sullivan's *Precalculus*

The only way to learn mathematics is to do mathematics.

Section 7.3: Trigonometric Identities

- **Reading:** section 7.3
Read and work through examples 1-8 and their matched problems.
- The textbook does not talk about how to disprove false identities, but it is very simple. See the [supplementary material on disproving identities](#) for a brief discussion.
- **Practice Problems:** 7.3 #1, 2, 11, 13, 15, 19, 23, 27, 31, 35, 39, 43, 45, 49, 53, 55, 57, 61, 65, 69, 71, 75, 79, 83, 91, 93, 97, 99, 101
- **Section 7.4: Sum and Difference Formulas**
 - **Reading:** section 7.4
Read and work through examples 1-10 and their matched problems.
 - Note that the cofunction identities (formulas 3ab) have [degree versions](#) as well.
 - **Practice Problems:** 7.4 #1, 2, 3, 11, 15, 17, 23, 25, 27, 31, 33, 35, 37, 45, 49, 51, 55, 57, 59, 61, 66, 83, 85, 87, 89, 95, 99
- **Section 7.5: Double-Angle and Half-Angle Formulas**
 - **Reading:** section 7.5
Read and work through examples 1-6 and their matched problems.
 - **Practice Problems:** 7.5 #7, 11, 15, 19, 21, 23, 41, 47, 51, 55, 59, 63, 65, 67, 69, 71, 73, 83, 85
- **Section 7.6: Product-Sum and Sum-Product Identities**
 - **Reading:** section 7.6
Read and work through examples 1-2 and their matched problems.
 - **Practice Problems:** 7.6 #1, 5, 9, 11, 13, 15, 17, 19, 23, 29, 31, 33, 35