UNIT 7: Trigonometric Identities and Solving Trigonometric Equations

Objectives: Upon completion of the unit, students will be able to:

- Simplify trigonometric expressions involving trig identities
- Use trig identities to determine the exact value of an expression
- Solve trig equations (use trig identities, zero product property, using triangles, inverse trig, etc.)
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Video Lectures	Video Examples	Section from Text (WebAssign)
1a. Basic Identities (Reciprocal, Quotient, Pythagorean) 1b. Cofunction Identities 1c. Even and Odd Identities 1d. Verify two sided trig identity – ONLY work with ONE side	1a. Simplify basic trig expression 1b. Simplify trig expressions (common denominators) 1c. Simplifying trig expressions 1d. Simplifying trig expressions with fractions 1e. More simplifying trig expressions with binomial denominators and needing LCD	7.1
2a. Sum and Difference Identities (COS) 2b. Sum and Difference Identities (SIN) 2c. Sum and Difference Identities (TAN)	2a. Simplify an expression to be sum/difference identity 2b. Use sum/difference identities to simplify trig expressions 2c. Use sum/difference identity to find exact value of cos expression 2d. Use sum/difference identity to find exact value of sin expression	7.2
3a. Double Angle Identities 3b. Half-Angle Identities 3c. Sum to product and product to sum formulas	3a. Use double angle formulas to simplify expression, then evaluate 3b. Determine double angle trig values given information 3c. Using half angle identity with powers 3d. Determine exact value of cos using half angle identity 3e. Determine exact value of sin using half angle identity 3f. Determine exact value of tan using half angle identity	7.3
4a. Solving Trig Equations I 4b. Solving Trig Equations II 4c. Solving Trig Equations III	4a. Solve basic trig equation 4b. Solve trig equation (factor GCF) 4c. Solve quadratic trig equation 4d. Solve basic trig equation using triangles 4e. Solve factorable trig equation (exact solutions)	7.4

5a. Solving Trig Equations IV 5b. Solving Trig Equations V 5c. Solving Trig Equations VI	5a. Solve trig equation involving quadratics and using substitutions of trig identities 5b. Find all solutions of quadratic trig equation 5c. Solve trig equation with multiple angle (4x) 5d. Solve trig equation with multiple angle & ugly answer 5e. Solve trig equation with double angle identity	7.5