

1060-2. STUDY GUIDE FOR EXAM 2

Exam 2 will be in lecture on Thursday, November 12. The material covered is in sections 4.7, 5.1-5.5. It will be closed book, closed notes, and calculators will not be allowed. You are allowed one lettersize piece of paper with anything on it. You will have approximately 60 minutes for the exam.

This guide contains a checklist of important skills to learn before Exam 2. You will find good examples among the textbook examples, textbook problems, relevant quizzes and recent webwork.

Skills checklist:

- (1) Definitions, ranges for the inverse trigonometric functions.
- (2) Use fundamental identities in order to simplify formulas or verify identities.
- (3) Solve linear trigonometric equations: be able to use arcsin, arccos, arctan if necessary.
- (4) Solve quadratic trigonometric equations.
- (5) Solve trigonometric equations with functions of multiple angles, e.g. $2 \cos(3t) - 1 = 0$.
- (6) Be able to find a general solution or the solutions in a given interval.
- (7) Sum and difference formulas, double angle formulas, half-angle formulas.
- (8) Apply these formulas to compute the trigonometric function of new angles from old ones (e.g., $\cos(\pi/8)$ from $\cos(\pi/4)$ using the half angle).
- (9) Verify certain identities using these formulas, e.g., $\cos(\pi/2 - x) = \sin x$
- (10) Solve a trigonometric equation by first applying some formula to reduce it to a quadratic or linear equation or factoring, e.g., $\sin x + \sin 2x = 0$, $\sin x + \cos 2x = 0$.
- (11) Projectile motion using a double angle formula, like ex 73 in 5.3 or Example 12 in 5.5.
- (12) Various other applications of the formulas, as we did in class or as in the last webwork assignment.