

MATH 1316
TRIGONOMETRY
LAB EXERCISE #5

Instructor's Name: _____

NAME: _____

DATE: _____

SECTION # : _____

Attach computer printouts to this sheet.

5a. Use the TI-83 to graph $y = \sin^{-1}(x)$. (Print) Use $(-2 \leq x \leq 2)$

5b. Use the TI-83 to graph $y = \tan^{-1}(x)$. (Print) Use $(-2 \leq x \leq 2)$

5c. Use the TI-83 and express approximate solutions (Find x) to the nearest tenth of a degree. (Print)

$$\frac{2 \tan(x)}{3 - \tan^2(x)} = 1$$

5d. Use the TI-83 and express approximate solutions (Find x) to the nearest tenth of a degree. (Print)

$$\cos(x) = \sin^2\left(\frac{x}{2}\right)$$

5e. Use the TI-83 to calculate $\sin^{-1}(-.66045320)$ in degrees. (Print)

TRIGONOMETRY: LAB # 5 (06)

(5a & 5b): Your domain has been defined. But the range, you must determine. Do the text's flaps help? How about the previous text, or using the index for the current text? What is the range for these two inverse one to one functions? If you get this wrong, your graph will really be distorted. The "zoom" key could help... what does selection Ztrig and Zoomfit do? But you should not need either of these keys, if you know what the range is for each of the inverses. Experiment, and do consult your text's index if you are confused.

(5c) Solve the equation for $\tan(x)$ without use of the calculator. It will not help, unless you are using a TI-89. Document what you did and make it part of your turn in. There is more than one answer. Check each answer in the equation... does the equation balance in each case? Now convert every answer using the arctan key. Are you in the correct mode? Check your answers using the original equation.

(5d) There are two ways to do this problem. You can do it by using trig substitutions and solving algebraically. The problem in this case is that you must have either cosine or sine on both the right & left side of the equation, and the size of the angle must be the same... either the full or half angle, but it must be the same. Consult your text's flaps... is there a substitution you can do for one of the equation's sides, that makes this an easy problem to solve? Document what you do.

If you elect another path, then you can graph both the left and right sides of the equation. If the graphs intersect, then your solutions are at those intersections. Remember, if you graph, you must select both the domain and range, and these settings, if set improperly, may result in graphs which are difficult to interpret, and should you be in radian or degree mode? Your solutions reside in where the graphs intersect, so use the 2nd calculate button/intersect. The calculator wants the first curve – just move the cursor fairly close to the intersection, then press enter. Now it wants the second curve, but since you are already there at the intersection, just press enter. If you are set to radians, then your answer will be in radians. Is that what the question asked? And is there more than one intersection? Print each solution.

(5e) This is a simple arcsin operation unless you are in the wrong mode.