

57770 Exam 3

Honor Statement: I _____ understand that this is a closed notes, eyes on my own paper, no calculator, no talking exam. I assure you and my fellow students that all of the work on this exam is my own and I will not cheat in any way, shape or form on this test.

I also agree that I will turn in this exam on time and not go over the time allotted.

Signed: _____

Be sure to show work. No partial credit can be given if you do not. If you do not show your work you will not be able to get full credit. If you use short cuts and/or tricks be sure to explain what you are doing. Box your final answers to distinguish your final answer to distinguish it from any relevant work used to get it. Come ask me if you don't understand any questions.

WAIT FOR ME TO ANNOUNCE THAT YOU SHOULD BEGIN THE TEST BEFORE TURNING THIS PAGE.

Total points:

Problem 1 (10 points). *Show that $\sin(\alpha + \beta) = \sin(\alpha) \cdot \cos(\beta) + \sin(\beta) \cdot \cos(\alpha)$ directly where $\alpha = 5\pi/3$ and $\beta = \pi/2$.*

Problem 2 (20 points). *Graph the following:*

a) $y = 3 \cos\left(\frac{\pi}{4}x\right) - 1$

b) $y = -2 \tan(8x)$

Problem 3 (20 points). *Give an exact answer for the following expressions:*

a) $\tan(\sin^{-1}(-1/2))$

b) $\csc(\cos^{-1}(1/3))$

c) $\tan^{-1}(\tan(7\pi/6))$

Problem 4 (20 points). *Given the value of one trig function and an angle find the values of the other five trig functions with the same angle. $\sec(\theta) = -5$
 $\pi/2 < \theta < \pi$*

Problem 5 (10 points). *Show that:*

a) $\sin(\alpha + \beta) + \sin(\alpha - \beta) = 2 \sin(\alpha) \cos(\beta)$.

Problem 6 (10 points). *Show that $\frac{1-\sin\theta}{\cos\theta} + \frac{\cos\theta}{1-\sin\theta} = 2\sec\theta$*

Problem 7 (10 points). *Is the function even, odd or neither? $f(x) = 4 \cos(2x) + 2 \csc(x)$*

EXTRA CREDIT (no partial credit awarded in this section) [5 points]

What is the domain and range of $f(x) = 2 \sin(x) \cos(x)$? Use this information to graph $f(x)$ (Consider $\sin(\alpha + \beta)$ with $\alpha = \beta = x$).

Show extra work here. Be sure to indicate which problem you are working on.