

Math 190 Lab 2: Sept 22 and 24

Work through the following problems while the instructor and TA circulate. When you have completed the problems (to the satisfaction of the facilitators) you can spend the rest of the lab working on the weeks homework.

Warm up: Compute the following using special triangles and/or the unit circle

- $\sin\left(\frac{3\pi}{4}\right)$
- $\tan\left(\frac{7\pi}{6}\right)$
- $\sin\left(\frac{7\pi}{3}\right)$
- $f(g(\pi))$ where $f(x) = \sqrt{x+1}$ and $g(x) = \cos x$.

Questions:

1. We can write the function $\sqrt{x+1}$ as a composition of two functions. That is $\sqrt{x+1} = f(g(x))$ where $f(x) = \sqrt{x}$ and $g(x) = x+1$. Do the same for the following functions:
 - (a) $\sin 4x$
 - (b) $\cos^2 x$
 - (c) $(\tan(x^2))^{1/2}$
2.
 - (a) Plot $\sin x$.
 - (b) Plot $\frac{1}{x}$.
 - (c) Plot $\sin\left(\frac{1}{x}\right)$
 - (d) What is the domain of $\sin\left(\frac{1}{x}\right)$