Math 1A Final (Optional) Practice 1

November 9, 2018

This is optional practice for the final. We will have an optional practice every week. If you hand it in, I will check it for you and give you feedback, but it is optional, as stated before. If you would like personalized feedback on your work on this worksheet, please hand this in by **November 16, 2018**.

Question 1

Fill in the blanks:

- The domain of $f(x) = \sin(x)$ is _____ and its range is _____.

- The domain of $f(x) = \arcsin(x)$ is _____ and its range is _____.

- The domain of $f(x) = \arccos(x)$ is _____ and its range is _____.

- The domain of $f(x) = \arctan(x)$ is _____ and its range is _____.

- The domain of $f(x) = \ln(x)$ is _____ and its range is _____.

Question 2

Draw a graph of $y = \ln(x)$. Then, use this graph to draw a graph of $y = \ln(|x|)$.

Question 3

Evaluate the following quantities.

- $\sin\left(\frac{11\pi}{6}\right)$

- $\cot\left(\frac{-4\pi}{3}\right)$

- $\log_4(2)$

- $\log_{27}\left(\frac{1}{\sqrt{3}}\right)$

- $\arccos\left(\cos\left(\frac{20\pi}{3}\right)\right)$

Question 4

Find all possible values of x such that

$$\sin(3x) = \frac{\sqrt{3}}{2}$$

Question 5

Find the domain of the following function.

$$f(x) = \frac{\ln(x^2 - 4x + 3)}{\tan(2x) + 1}$$

Find the location of its zeros also (you may need to use the quadratic formula to find its zeros).

Question 6

Order the following values from smallest to largest. Hint: It is not possible to compute all of these, so you may have to use properties of the functions involved to figure this out.

$$0.5$$

$$\arctan(10)$$

$$-\frac{\pi}{3}$$

$$\arcsin(-1)$$

$$\frac{\pi}{2}$$

$$\arctan(1)$$

$$\arctan(-10)$$