Math 131 - February 24, 2015

Warm-up Problems

1. Find y'.

   (a) $\sin y = x$. $y' =$

   (b) $\cos y = x$. $y' =$

   (c) $\tan y = x$. $y' =$

   (d) $\sec y = x$. $y' =$

   (e) $\csc y = x$. $y' =$

   (f) $\cot y = x$. $y' =$

2. Fun! (Not calculus)
   Take any integer (preferably large). Count the number of even digits, odd digits and total digits. Concatenate these to form a new number. Repeat.

   For example, start with 9288759. 3 even digits, 4 odd digits aned 7 total digits which gives the new number 347. Repeating, 347 has 2 odd digits, 1 even digit and 3 total digits which gives 213. Repeat.....

   What happens and why?

Lecture Problems

3. Find the derivatives.

   (a) $y = x\tan^{-1} x$. $y' =$.

   (b) $y = 5\sin^{-1} 2x - 13\cos^{-1} x^2$. $y' =$

   (c) $y = \tan^{-1} x \sin^{-1} x$. $y' =$

4. $e^y = x$. $y' =$

5. (a) $y = \ln(x^2 + 1)$. $y' =$

   (b) $y = \ln(\cos x + x^2)$. $y' =$

6. (a) $y = x^x$. $y' =$

   (b) $y = x^{\sqrt{x}}$. $y' =$

   (c) $y = (\sqrt{x})^x$. $y' =$

7. (a) $y = (x+3)^3(x-4)^2$. $y' =$

   (b) $y = \dfrac{x^5}{(1-10x)\sqrt{x^2+2}}$. $y' =$