MATH 158 Assignment 6, Spring 2011

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Due Monday April 11th at 5:20 pm.

Many of these exercises involve calculating definite integrals.
This will help you review Chapters 8 and 9 in preparation for the final exam.

14.4 Series with Positive Terms

Exercises 4, 12, 13, 15, 33, 34, 52, 60.

14.5 Taylor Series

Exercises 2, 4, 22, 28, 31, 35, 36 and
Find the Taylor series for $\cos x$ about $x = 0$ and determine the radius of convergence R for $\cos x$. Compare this with the series for $\sin x$.

13.1 Probability Distributions of Continuous Random Variables

Exercises 1, 13, 20, 26, 43 and
If the average waiting time to see a doctor at VGH is 2 hours, what is the probability that you will wait less than one hour? More than 4 hours? [Assume that the waiting time is exponentially distributed.]

13.2 Expected Value and Standard Deviation

[Note, the solutions for exericises 15, 17, ..., 27 are out of order.]

Exercises 2, 8, 13, 20, 28.
For question 20, calculate also the average and sketch the graph of $f(x)$ showing the median and the average. Is the median less than or greater than the average?

13.3 The Normal Distribution

Exercises 1, 5, 10, 20, 21, 22 and
If Z is a random variable from the standard normal distribution,

$$Pr(0 < Z < 1) = \int_0^1 \frac{e^{-x^2/2}}{\sqrt{2\pi}} dx = 0.341345$$

to six decimal places. Approximate the definite integral using a calculator and Simpson's rule with $n = 2$ and $n = 4$ intervals.