UPDATED GENERAL INFORMATION − OCTOBER 14, 2019

Office hours

Beginning with the week of October 14, normal office hours will be 12:30 − 1:30 Wednesdays and by appointment. Speaking with me after class might be the most convenient way to set up times for appointments.

The first quiz

This is scheduled for **Tuesday, October 22,** in the discussion sections. It will cover material through the end of Chapter III. The file

http://math.ucr.edu/~res/math144-2017/aabUpdate03.f17.pdf

gives some sample problems, and the only change from 2017 is that the two discussion sections may be assigned the same quiz problem. The file

http://math.ucr.edu/~res/math144-2017/quiz1prep.pdf

contains some hints that might be helpful.

Recommended exercises and readings for Chapter IV

These will be nearly the same as in the file from Fall 2017:

http://math.ucr.edu/~res/math144-2017/aabUpdate02.f17.pdf

The next item provides clickable links for files in this document related to the first three chapters of the notes.

Clickable links for the file cited above

http://math.ucr.edu/~res/math144-2017/exercises92f17.pdf

http://math.ucr.edu/~res/math144-2017/solutions92f17.pdf

http://math.ucr.edu/~res/math144-2017/productposet.pdf

http://math.ucr.edu/~res/math144-2017/corestrictions.pdf

http://math.ucr.edu/~res/math144-2017/polarnote.pdf

http://math/ucr.edu/~res/math144-2017/polar-ambiguity.pdf

http://math.ucr.edu/~res/math144-2017/polar-ambiguity-2017.pdf

The last three files deal with a subtle problem in calculus which is related to the concepts of equivalence classes and functions. Specifically, if one is given two curves defined in polar coordinates by $F(r, \theta) = 0$ and $G(r, \theta) = 0$, then solving these equations for the unknowns r and θ does not necessarily yield all points where these curves meet. One must recognize the possibility of common points coming from $F(r, \theta) = 0$ and $G(r', \theta') = 0$ where the polar coordinates (r, θ) and (r', θ') represent the same point in rectangular coordinates.

Additional files

Here are some addional files that cover topics from the first three chapters of the notes.

http://math.ucr.edu/~res/math144-2017/paradoxes.pdf

This is an informal discussion of the self-referencing issues which arose near the beginning of the 20th century and required a more careful approach to formulating set theory.

http://math.ucr.edu/~res/math144-2017/knight.pdf

This is the drawing from the lectures which illustrates how a knight can reach any point on a chessboard. Strictly speaking, it only shows how this can be done if one starts at the usual position for a knight at the beginning of the game, but given any two squares one can always backtrack from a given position to reach the standard position at the beginning of a game and follow up by moving to the desired end position.

http://math.ucr.edu/~res/math144-2017/extraneous.pdf

This is another example for the discussion near the end of the file

http://math.ucr.edu/~res/math144-2017/mathproofs.pdf

which illustrates one potential difficulty with the usual approach to solving algebraic equations. In most cases, when one manipulates an equation a step in the solution is reversible, but sometimes it is not. If there are irreversible steps, we only know that we are finding possible solutions, and at the end we need to verify whether or not these possibilities are actual solutions.

Old quiz problems

Here are the quiz problems from Fall 2017. Each section received a different problem. While both sections may receive the same problem this year, the level of difficulty might be a little higher.

Let $A = \{a, b, c\}$, $B = \{b, c, d\}$, and $C = \{b, c, e\}$.

Find $A \cup (B \cap C)$, $(A \cup B) \cap C$, and $(A \cup B) \cap (A \cup C)$. Which of these sets are equal?

Find $A \cap (B \cup C)$, $(A \cap B) \cup C$, and $(A \cap B) \cup (A \cap C)$. Which of these sets are equal?

Find $(A - B) - C$ and $A - (B - C)$. Are these sets equal?

Hint: It might help to draw some pictures (Venn diagrams).