MATH 3250 COMBINATORICS SURVEY AND LaTeX PRACTICE

REPLACE THIS TEXT WITH YOUR PREFERRED FIRST NAME AND YOUR LAST NAME

This document is a beginning of the semester survey done in LaTeX so that I can get to know you and you can practice with LaTeX. My comments in the source code (in blue) should help you with the LaTeX commands.

(1) What is your home town?
(2) What did you share about yourself on the first day of class? What are some favorite sports or activities that you are involved in at UConn?
(3) What is your favorite (math or otherwise) class in college so far?
(4) What are some of your goals (academic or otherwise) for this semester?
REPLACE WITH YOUR GOALS
(5) What are some of your goals for after college?
(6) What do you hope to get out of this class? Why are you taking this class?
    - Replace this text with your answer to the first question
    - Replace this text your answer to the second question
(7) Please list all college-level in math/CS/stats/logic/philosophy, etc which you have successfully completed in the past 3 years:
    (a) replace this text with a class
    (b) replace this text with another class
    (c) replace this text with another class
(8) If

$$f(x) = x^3 + e^x$$

then the derivative of f is ...
(9) A sequence is defined by

$$x_n = \frac{n}{n^2 + 1}.$$

What is a formula for x_{n+1}?

(10) Using the sequence in problem (9), what is

$$\lim_{n\to\infty} x_n?$$

(11) What Greek letters are used in the definition of the limit? (How about epsilon and delta, but I want you to typeset them. For example, to write the Greek letters alpha and beta, you would simply type α and β. If you wish, you can look up and practice writing your favorite Greek letters.)

(12) A permutation f of the set $\{1, 2, 3, \ldots, n\}$ is defined as a bijection $f : \{1, 2, 3, \ldots, n\} \to \{1, 2, 3, \ldots, n\}$.

(13) Express $1 + \frac{1}{2} + \left(\frac{1}{2}\right)^2 + \cdots$ using the summation notation.

(14) Please look at the source code below for typesetting a matrix. Consider the matrices

$$R = \begin{bmatrix} -1 & 0 & 0 \\ 0 & \cos\theta & \sin\theta \\ 0 & \sin\theta & -\cos\theta \end{bmatrix} \quad \text{and} \quad S = \begin{bmatrix} -1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}.$$

Recall or google how to compute the *determinant* of a 3×3 matrix, and compute $det(R)$ and $det(S)$.

(15) Write below a 3×3 matrix (or larger) which has determinant -1.

(16) We can easily attach a captioned figure to a LaTeXdocument and cite the figure. For example, Figure 1 shows Jonathan XIV, posing for a portrait. In Figure 2, we see two dogs, Jonathan XIV (in the foreground) and Jonathan XIII.

Your tasks are to find a picture of a different Husky, upload the image file to this Overleaf project, create a captioned figure environment (following my source code examples below), and use the backslash label and backslash ref commands to label and cite this new figure (following my examples in the previous sentence).

(17) Imagine that you have written a book-length or article-length autobiography about your mathematical experiences. *Write a passage, thought as a quote from your autobiography, that reveals something significant about you mathematically.* Please be as creative as you like. In case you are not feeling creative, here are a few suggested prompts: a story of your mathematical past; your current feelings about mathematics; positive and negative episodes from past math courses; moments in which math came up in other situations; plans for the future.
Note: Your submission will be kept confidential, but you'll be asked to share a sentence with the rest of the class.

FIGURE 1. Jonathan XIV

FIGURE 2. Jonathan XIV and Jonathan XIII

(18) (optional) Is there anything else you'd like to tell me about yourself?