CS 580 – Homework 1

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Problem 1

This is the first problem. This is the first problem. This is the first problem. This is the first problem. This is the first problem. This is the first problem.

This is the second paragraph of the first problem. This equation $c^2 = a^2 + b^2 - 2ab\cos(\theta_C)$ is an example of in-line math.

And this is an example of display mode math:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

This is an example of the align* environment, which can be helpful for mathematical expressions with multiple steps:

$$\begin{aligned} r &= 1/2 + 1/3 + 1/4 + 1/5 + 1/6 + 1/7 + 1/8 + \ldots + 1/n \\ &< 1/2 + 1/4 + 1/4 + 1/8 + 1/8 + 1/8 + 1/8 + \ldots + 1/n \\ &= \sum_{i=1}^{\log n} \frac{2^{i-1}}{2^i} \\ &= 1/2 \log_2(n) = O(\log n) \end{aligned}$$

This is an example of matrices in LaTeX:

$$\begin{aligned} \sigma_x &= \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} \\ \sigma_y &= \begin{pmatrix} 0 & -i \\ i & 0 \end{pmatrix} \\ \sigma_z &= \begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix} \end{aligned}$$

This concludes the first problem and the mathematical examples. The following questions demonstrate how to use the template for multipart problems. If I add more, the problem should continue for on, and

on, and on.

However, it will end eventually, and the next problem should continue on an odd numbered page.

Problem 2

a) This is the second problem, first question. This is the second problem, first question. This is the second problem, first question. This is the second problem, first question. This is the second problem, first question. This is the second problem, first question.

b) This is the second problem, second question. This is the second problem, second question. This is the second problem, second question. This is the second problem, second question. This is the second problem, second question. This is the second problem, second question.

c) This is the second problem, third question. This is the second problem, third question. This is the second problem, third question. This is the second problem, third question. This is the second problem, third question. This is the second problem, third question.

Problem 3

This is an introduction to the the third problem.

a) This is the third problem, first question. This is the third problem, first question. This is the third problem, first question. This is the third problem, first question. This is the third problem, first question. This is the third problem, first question.

b) This is the third problem, second question. This is the third problem, second question. This is the third problem, second question. This is the third problem, second question. This is the third problem, second question. This is the third problem, second question.

c) This is the third problem, third question. This is the third problem, third question. This is the third problem, third question. This is the third problem, third question. This is the third problem, third question. This is the third problem, third question.

d) This is the third problem, fourth question. This is the third problem, fourth question. This is the third problem, fourth question. This is the third problem, fourth question. This is the third problem, fourth question. This is the third problem, fourth question.

Problem 4

This is the final problem.