You may collaborate with other students on the homework but you must submit your own individually written solution, identify your collaborators, and acknowledge any external sources that you consult.

Please write each answer on a separate page and use *exactly 3 pages* for your submission. You can do this using the `\newpage` command between your answers. See the `hw1-template.tex` template file provided on the course website for this assignment.

PROBLEM 1 *Passage*

Typeset your favorite passage from a book.

Ans.

"I will not eat them in the rain. I will not eat them on a train. Not in the dark! Not in a tree! Not in a car! You let me be! I do not like them in a box. I do not like them with a fox. I will not eat them in a house. I do not like them with a mouse. I do not like them here or there. I do not like them anywhere! I do not like green eggs and ham! I do not like them, Sam-I-am.

You do not like them. So you say. Try them! Try them! And you may. Try them and you may, I say. Sam! If you will let me be, I will try them. You will see.

Say! I like green eggs and ham! I do! I like them, Sam-I-Am! And I would eat them in a boat. And I would eat them with a goat . . . And I will eat them, in the rain. And in the dark. And on a train. And in a car. And in a tree. They are so good, so good, you see! So I will eat them in a box. And I will eat them with a fox. And I will eat them in a house. And I will eat them with a mouse. And I will eat them here and there. Say! I will eat them anywhere! I do so like green eggs and ham! **Thank you! Thank you, Sam-I-Am.**"

From *"Green Eggs and Ham"*, by Dr. Seuss.

PROBLEM 2 *Asymptotic notation*

Let f be a function. Give a formal definition of the set $\Theta(f)$.

$$\Theta(f) = \{ \text{ functions } g \text{ such that } ... \qquad \}$$

Hint: Use the `\exists` command to make the "there exists" symbol $\exists$, and the `\forall` command to make the "for all" symbol $\forall$.

Ans.

$$\Theta(f) = \left\{ \begin{array}{l} \text{functions } g \text{ such that } \exists \text{ constants } c_1, c_2, \text{ and } n_0 \geq 0 \text{ such} \\ \text{that } 0 \leq c_1 f(n) \leq g(n) \leq c_2 f(n) \; \forall \; \text{n} \geq n_0 \end{array} \right\}$$

PROBLEM 3 *includegraphics command*

Learn how to include drawings in your documents with the `\includegraphics{file}` command by submitting a caricature of me.

Ans.

Figure 1: A caricature of Prof. Abhi Shelat.