Read the following and then answer the questions below. Turn in your answers separately from your programming homework. Be sure your answers are organized and clearly written (or typed).

- Ch. 1: 1.7
- Ch. 3: 3.1–3.2
- Ch. 4: 4.1–4.2

1. In your own words, describe what is meant by “compiler implementation”, “pure interpretation”, and “hybrid implementation systems”.

2. In your own words, describe what Just-in-Time (JIT) compilation is.

3. Write a Java program consisting of a single class, a method (that prints something using `System.out.println`), and a main function, where the main function creates an object of the class and calls the method on the object. Compile the program. Then run the `javap -c` command on the class to view the bytecode. Look up (e.g., here: https://en.wikipedia.org/wiki/Java_bytecode_instruction_listings) what each of the bytecode instructions do (e.g., `aload_0`, `invokespecial`, `invoke_virtual`, and so on). Provide the original class, the bytecode, and a brief description of what you think the bytecode is saying. (Note you can do this on ada if you don’t have java setup on your own computer.)

4. Briefly summarize the difference between a “lexeme” and a “token”, and give at least 5 examples of lexemes for different types of tokens in our MyPL language.