Problem 3.3:

Problem 3.3(a): 10 points
Problem 3.3(b): 10 points
Problem 3.3(c): 10 points

Preparation: Read or review Chapter 3 of the textbook.

- **Loudon, “Compiler Construction”** - see section 3.2.3 “Derivations and the language defined by a grammar”, focusing on the portions about leftmost and rightmost derivations (pages 100-116).

**3.3** Given the grammar

\[
\begin{align*}
exp & \rightarrow exp \ addop \ term \ | \ term \\
addop & \rightarrow + \ | \ - \\
term & \rightarrow term \ mulop \ factor \ | \ factor \\
mulop & \rightarrow * \\
factor & \rightarrow ( \ exp \ ) \ | \ number
\end{align*}
\]

Write the complete **leftmost** and **rightmost** derivation sequence for each of the following expressions:

a. \(3+4*5-6\)  \hspace{1cm} b. \(3*(4-5+6)\)  \hspace{1cm} c. \(3-(4+5*6)\)