This homework assignment is a written assignment that should be turned in at the beginning of class on Thursday March 5.

1. Consider the following lexically scoped language of integer expressions:

\[
\begin{align*}
exp & ::= \text{NUM} \quad (1) \\
      & | \text{VAR} \quad (2) \\
      & | exp_1 \text{ where } VAR = exp_2 \quad (3) \\
      & | exp_1 + exp_2 \quad (4)
\end{align*}
\]

Give an attribute grammar that computes the value of an expression. You may use \textit{NUM} to refer to the integer value of the numeric literal and that \textit{VAR} to refer to the \textit{Atom.atom} value of a variable. Your solution may use functional data structures, such as sets and finite maps.