Use Section 3.3 of the MINILAX Definition and to answer the following questions.

1) Apply $P$ to the block \texttt{declare v: integer begin v end}. Simplify the resulting expression as much as you can, given the information in Section 3.3. Show your work.
   
a. Briefly compare the process of applying $P$ and simplifying to the process of compilation. How are the products of these two processes related?

   b. What information is needed in order to simplify the expression further? To what process will any further simplification be related? Explain briefly.

   c. Explain how the necessary information is supplied according to the assumptions stated at the beginning of Section 2 of the definition.

2) In class, we discussed several compilation strategies and postulated a number of data structures that the compiler would need to implement these strategies.

   a. Which compiler data structure would be used to evaluate the \texttt{cases} expression of $E[[I]]$? Explain briefly.

   b. Which compiler data structure would be used to evaluate the \texttt{cases} expressions of $E[[E_1 IO E_2]]$? Explain briefly.

3) Briefly indicate how the voiding coercion appears in the definitions of $E[[\textbf{if} E_1 \textbf{then} E_2]]$ and $E[[E_1; E_2]]$.

4) Briefly indicate how the definition of $E[[E_1 \textbf{or} E_2]]$ implements the short-circuit evaluation required by Section 1.4.3.

The purposes of this assignment are to review your understanding of denotational definitions and to relate them to components of a compiler. It is worth 10 points, and is due at the beginning of the lecture on January 28.