$$
\begin{array}{rcl}
program & ::= & \textbf{class} \quad \textbf{id} \quad \{ \quad variable\_declarations \quad method\_declarations \quad \} \\[4pt]
variable\_declarations & ::= & variable\_declarations \quad type \quad variable\_list \quad ; \quad | \ \epsilon \\[4pt]
type & ::= & \textbf{int} \ | \ \textbf{real} \\[4pt]
variable\_list & ::= & variable \ | \ variable\_list \quad , \quad variable \\[4pt]
variable & ::= & \textbf{id} \ | \ \textbf{id} \quad [\quad \textbf{num} \quad] \\[4pt]
method\_declarations & ::= & method\_declaration \quad more\_method\_declarations \\[4pt]
more\_method\_declarations & ::= & more\_method\_declarations \quad method\_declaration \ | \ \epsilon \\[4pt]
method\_declaration & ::= & \textbf{static} \quad method\_return\_type \quad \textbf{id} \quad (\quad parameters \quad) \\
& & \{ \quad variable\_declarations \quad statement\_list \quad \} \\[4pt]
method\_return\_type & ::= & type \ | \ \textbf{void} \\[4pt]
parameters & ::= & parameter\_list \ | \ \epsilon \\[4pt]
parameter\_list & ::= & type \quad \textbf{id} \ | \ parameter\_list \quad , \quad type \quad \textbf{id} \\[4pt]
statement\_list & ::= & statement\_list \quad statement \ | \ \epsilon \\[4pt]
statement & ::= & variable\_loc \quad = \quad expression \quad ; \\
& & | \ \ \textbf{id} \quad (\quad expression\_list \quad) \quad ; \\
& & | \ \ \textbf{if} \quad (\quad expression \quad) \quad statement\_block \quad optional\_else \\
& & | \ \ \textbf{for} \quad (\quad variable\_loc \quad = \quad expression \quad ; \quad expression \quad ; \quad incr\_decr\_var \\
& & \quad \ ) \quad statement\_block \\
& & | \ \ \textbf{return} \quad optional\_expression \quad ; \\
& & | \ \ \textbf{break} \quad ; \\
& & | \ \ \textbf{continue} \quad ; \\
& & | \ \ incr\_decr\_var \quad ; \\
& & | \ \ statement\_block \\[4pt]
optional\_expression & ::= & expression \ | \ \epsilon \\[4pt]
statement\_block & ::= & \{ \quad statement\_list \quad \} \\[4pt]
incr\_decr\_var & ::= & variable\_loc \quad \textbf{incdecop} \\[4pt]
optional\_else & ::= & \textbf{else} \quad statement\_block \ | \ \epsilon
\end{array}
$$

$$\begin{array}{rcl}
\textit{expression\_list} & ::= & \textit{expression} \quad \textit{more\_expressions} \mid \epsilon \\[1ex]
\textit{more\_expressions} & ::= & , \quad \textit{expression} \quad \textit{more\_expressions} \mid \epsilon \\[1ex]
\textit{expression} & ::= & \textit{simple\_expression} \mid \textit{simple\_expression} \; \textbf{relop} \; \textit{simple\_expression} \\[1ex]
\textit{simple\_expression} & ::= & \textit{term} \mid \textit{sign} \quad \textit{term} \mid \textit{simple\_expression} \; \textbf{addop} \; \textit{term} \\[1ex]
\textit{term} & ::= & \textit{factor} \mid \textit{term} \; \textbf{mulop} \; \textit{factor} \\[1ex]
\textit{factor} & ::= & \textit{variable\_loc} \mid \textbf{id} \; (\; \textit{expression\_list} \;) \mid \textbf{num} \mid (\; \textit{expression} \;) \mid \; ! \; \textit{factor} \\[1ex]
\textit{variable\_loc} & ::= & \textbf{id} \mid \textbf{id} \; [\; \textit{expression} \;] \\[1ex]
\textit{sign} & ::= & + \mid -
\end{array}$$