program ::= **class id {** *variable_declarations method_declarations* **}**

variable_declarations ::= *type variable_list* **;** *variable_declarations* | **ε**

type ::= **int** | **real**

variable_list ::= *variable more_variables*

more_variables ::= **,** *variable_list* | **ε**

variable ::= **id** *opt_array*

opt_array ::= **[num]** | **ε**

method_declarations ::= *method_declaration more_method_declarations*

more_method_declarations ::= *method_declaration more_method_declarations* | **ε**

method_declaration ::= **static** *method_return_type* **id (** *parameters* **)**
{ *variable_declarations statement_list* **}**

method_return_type ::= *type* | **void**

parameters ::= *parameter more_parameters* | **ε**

more_parameters ::= **,** *parameters* | **ε**

parameter ::= *type* **id**

statement_list ::= *statement statement_list* | **ε**

statement ::= ***id*** *assign_incdec_func_call* **;**
| **if (** *expression* **)** *statement_block optional_else*
| **for (** *variable_loc* = *expression* **;** *expression* **;** *incr_decr_var* **)** *statement_block*
| **return** *optional_expression* **;**
| **break ;**
| **continue ;**
| *statement_block*

assign_incdec_func_call ::= *opt_index assign_or_inc*
| **(** *expression_list* **)**

assign_or_inc ::= **incdecop** | = *expression*

optional_expression ::= *expression* | **ε**

statement_block ::= **{** *statement_list* **}**

incr_decr_var ::= *variable_loc* **incdecop**

optional_else ::= **else** *statement_block* | ε

expression_list ::= *expression more_expressions* | **ε**

more_expressions ::= **,** *expression more_expressions* | **ε**

expression ::= *simple_expression optional_relop*

optional_relop ::= **relop** *simple_expression* | **ε**

simple_expression ::= *sign term optional_addops* | *term optional_addops*

optional_addops ::= **addop** *term optional_addops* | **ε**

term ::= *factor optional_mulop*

optional_mulop ::= **mulop** *term* | **ε**

factor ::= **id** opt_*array_func_call* | **num** | **(** *expression* **)** | **!** *factor*

opt_*array_func_call* ::= *opt_index* | **(** *expression_list* **)**

variable_loc ::= **id** *opt_index*

opt_index ::= **[** *expression* **]** | **ε**

sign ::= + | -