

1. $\text{program} \rightarrow \text{declaration-list}$
2. $\text{declaration-list} \rightarrow \text{declaration-list } \text{declaration} \mid \text{declaration}$
3. $\text{declaration} \rightarrow \text{var-declaration} \mid \text{fun-declaration}$
4. $\text{var-declaration} \rightarrow \text{type-specifier } \underline{\text{ID}} \text{ ; } \mid \text{type-specifier } \underline{\text{ID}} \text{ [} \underline{\text{INTEGER}} \text{] ;}$
5. $\text{type-specifier} \rightarrow \underline{\text{int}} \mid \underline{\text{float}} \mid \underline{\text{void}}$
6. $\text{fun-declaration} \rightarrow \text{type-specifier } \underline{\text{ID}} \text{ (} \text{params } \text{) compound-stmt}$
7. $\text{params} \rightarrow \text{param-list} \mid \underline{\text{void}}$
8. $\text{param-list} \rightarrow \text{param-list } \text{ , param } \mid \text{param}$
9. $\text{param} \rightarrow \text{type-specifier } \underline{\text{ID}} \mid \text{type-specifier } \underline{\text{ID}} \text{ []}$
10. $\text{compound-stmt} \rightarrow \{ \text{local-declarations statement-list } \}$
11. $\text{local-declarations} \rightarrow \text{local-declarations var-declaration} \mid \text{empty}$
12. $\text{statement-list} \rightarrow \text{statement-list statement} \mid \text{empty}$
13. $\text{statement} \rightarrow \text{expression-stmt}$
 $\quad \mid \text{compound-stmt}$
 $\quad \mid \text{selection-stmt}$
 $\quad \mid \text{iteration-stmt}$
 $\quad \mid \text{return-stmt}$
14. $\text{expression-stmt} \rightarrow \text{expression ; } \mid \text{ ;}$
15. $\text{selection-stmt} \rightarrow \underline{\text{if}} \text{ (expression) statement}$
 $\quad \mid \underline{\text{if}} \text{ (expression) statement } \underline{\text{else}} \text{ statement}$
16. $\text{iteration-stmt} \rightarrow \underline{\text{while}} \text{ (expression) statement}$
17. $\text{return-stmt} \rightarrow \underline{\text{return}} \text{ ; } \mid \underline{\text{return}} \text{ expression ;}$
18. $\text{expression} \rightarrow \text{var } \equiv \text{ expression} \mid \text{simple-expression}$
19. $\text{var} \rightarrow \underline{\text{ID}} \mid \underline{\text{ID}} \text{ [expression]}$
20. $\text{simple-expression} \rightarrow \text{additive-expression relop additive-expression} \mid \text{additive-expression}$
21. $\text{relop} \rightarrow \leq \equiv \mid \leq \mid \geq \mid \geq \equiv \mid \equiv \equiv \mid \neq$
22. $\text{additive-expression} \rightarrow \text{additive-expression addop term} \mid \text{term}$
23. $\text{addop} \rightarrow \pm \mid \mp$
24. $\text{term} \rightarrow \text{term mulop factor} \mid \text{factor}$
25. $\text{mulop} \rightarrow \underline{\text{ * }} \mid \underline{\text{ / }}$
26. $\text{factor} \rightarrow \text{(expression)}$
 $\quad \mid \text{var}$
 $\quad \mid \text{call}$
 $\quad \mid \text{integer}$
 $\quad \mid \text{float}$

27. integer $\rightarrow$ **INTEGER**

28. float $\rightarrow$ **FLOATPOINT**

29. call $\rightarrow$ **ID** (args)

30. args $\rightarrow$ arg-list | empty

31. arg-list $\rightarrow$ arg-list , expression | expression