|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **START ®** | **a0** | |
| with:   |  | | --- | | a0 = **prog** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **function, constructor, class, implementation, EPSILON**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **prog ®** | **a0** | |
| with:   |  | | --- | | a0 = **rept-prog0** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **function, constructor, class, implementation, EPSILON**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-prog0 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **classOrImplOrFunc** **rept-prog0** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **function, constructor, class, implementation**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **classOrImplOrFunc ®** | **a0 | a1 | a2** | |
| with:   |  | | --- | | a0 = **implDef** |  |  | | --- | | a1 = **classDecl** |  |  | | --- | | a2 = **funcDef** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **implementation**} |  |  |  | | --- | --- | | FIRST(a1) = { | **class**} |  |  |  |  | | --- | --- | --- | | FIRST(a2) = { | | **function, constructor**} | | Ç | **a0** | **a1** | **a2** | | **a0** | - | Æ | Æ | | **a1** | Æ | - | Æ | | **a2** | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **classDecl ®** | **a0** | |
| with:   |  | | --- | | a0 = **class** **id** **opt-classDecl2** **{** **rept-classDecl4** **}** **;** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **class**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **opt-classDecl2 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **isa** **id** **rept-opt-classDecl22** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **isa**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-opt-classDecl22 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **,** **id** **rept-opt-classDecl22** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **\,**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-classDecl4 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **visibility** **memberDecl** **rept-classDecl4** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **private, public**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **implDef ®** | **a0** | |
| with:   |  | | --- | | a0 = **implementation** **id** **{** **rept-implDef3** **}** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **implementation**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-implDef3 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **funcDef** **rept-implDef3** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **function, constructor**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **funcDef ®** | **a0** | |
| with:   |  | | --- | | a0 = **funcHead** **funcBody** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **function, constructor**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **funcHead ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **constructor** **(** **fParams** **)** |  |  | | --- | | a1 = **function** **id** **(** **fParams** **)** **arrow** **returnType** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **constructor**} |  |  |  | | --- | --- | | FIRST(a1) = { | **function**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **funcBody ®** | **a0** | |
| with:   |  | | --- | | a0 = **{** **rept-funcBody1** **}** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **{**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-funcBody1 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **localVarDeclOrStat** **rept-funcBody1** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **if, read, return, while, write, id, self, local**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **localVarDeclOrStat ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **localVarDecl** |  |  | | --- | | a1 = **statement** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **local**} |  |  |  | | --- | --- | | FIRST(a1) = { | **if, read, return, while, write, id, self**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **arithExpr ®** | **a0** | |
| with:   |  | | --- | | a0 = **term** **rightrec-arithExpr** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **(, floatLit, intLit, not, id, self, +, -**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rightrec-arithExpr ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **addOp** **term** **rightrec-arithExpr** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **+, -, or**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **term ®** | **a0** | |
| with:   |  | | --- | | a0 = **factor** **rightrec-term** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **(, floatLit, intLit, not, id, self, +, -**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rightrec-term ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **multOp** **factor** **rightrec-term** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **\*, /, and**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **factor ®** | **a0 | a1 | a2 | a3 | a4 | a5** | |
| with:   |  | | --- | | a0 = **sign** **factor** |  |  | | --- | | a1 = **idOrSelf** **factor2** **VarOrFunc** |  |  | | --- | | a2 = **not** **factor** |  |  | | --- | | a3 = **intLit** |  |  | | --- | | a4 = **floatLit** |  |  | | --- | | a5 = **(** **arithExpr** **)** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **+, -**} |  |  |  | | --- | --- | | FIRST(a1) = { | **id, self**} |  |  |  | | --- | --- | | FIRST(a2) = { | **not**} |  |  |  | | --- | --- | | FIRST(a3) = { | **intLit**} |  |  |  | | --- | --- | | FIRST(a4) = { | **floatLit**} |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | FIRST(a5) = { | | | | **(**} | | Ç | **a0** | **a1** | **a2** | **a3** | **a4** | **a5** | | **a0** | - | Æ | Æ | Æ | Æ | Æ | | **a1** | Æ | - | Æ | Æ | Æ | Æ | | **a2** | Æ | Æ | - | Æ | Æ | Æ | | **a3** | Æ | Æ | Æ | - | Æ | Æ | | **a4** | Æ | Æ | Æ | Æ | - | Æ | | **a5** | Æ | Æ | Æ | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **factor2 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **rept-idnest10** |  |  | | --- | | a1 = **(** **aParams** **)** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **(**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **VarOrFunc ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **idnest** **VarOrFunc** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **.**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **arraySize ®** | **a0** | |
| with:   |  | | --- | | a0 = **[** **arraySizeTail** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **[**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **arraySizeTail ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **]** |  |  | | --- | | a1 = **intNum** **]** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **]**} |  |  |  | | --- | --- | | FIRST(a1) = { | **intNum**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **type ®** | **a0 | a1 | a2** | |
| with:   |  | | --- | | a0 = **int** |  |  | | --- | | a1 = **id** |  |  | | --- | | a2 = **float** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **int**} |  |  |  | | --- | --- | | FIRST(a1) = { | **id**} |  |  |  |  | | --- | --- | --- | | FIRST(a2) = { | | **float**} | | Ç | **a0** | **a1** | **a2** | | **a0** | - | Æ | Æ | | **a1** | Æ | - | Æ | | **a2** | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **returnType ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **type** |  |  | | --- | | a1 = **void** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **float, id, int**} |  |  |  | | --- | --- | | FIRST(a1) = { | **void**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **memberDecl ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **funcDecl** |  |  | | --- | | a1 = **attributeDecl** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **function, constructor**} |  |  |  | | --- | --- | | FIRST(a1) = { | **attribute**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **funcDecl ®** | **a0** | |
| with:   |  | | --- | | a0 = **funcHead** **;** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **function, constructor**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **attributeDecl ®** | **a0** | |
| with:   |  | | --- | | a0 = **attribute** **varDecl** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **attribute**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **varDecl ®** | **a0** | |
| with:   |  | | --- | | a0 = **id** **:** **type** **rept-varDecl3** **;** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **id**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-varDecl3 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **arraySize** **rept-varDecl3** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **[**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **expr ®** | **a0** | |
| with:   |  | | --- | | a0 = **arithExpr** **relExprRest** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **(, floatLit, intLit, not, id, self, +, -**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **relExprRest ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **relOp** **arithExpr** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **<=, <>, ==, >, >=**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **fParams ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **id** **:** **type** **rept-fParams3** **rept-fParams4** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **id**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-fParams3 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **arraySize** **rept-fParams3** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **[**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-fParams4 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **fParamsTail** **rept-fParams4** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **\,**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **fParamsTail ®** | **a0** | |
| with:   |  | | --- | | a0 = **,** **id** **:** **type** **rept-fParamsTail4** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **\,**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-fParamsTail4 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **arraySize** **rept-fParamsTail4** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **[**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **aParams ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **expr** **rept-aParams1** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **(, floatLit, intLit, not, id, self, +, -**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-aParams1 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **aParamsTail** **rept-aParams1** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **\,**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **aParamsTail ®** | **a0** | |
| with:   |  | | --- | | a0 = **,** **expr** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **\,**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **idOrSelf ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **self** |  |  | | --- | | a1 = **id** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **self**} |  |  |  | | --- | --- | | FIRST(a1) = { | **id**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **idnest ®** | **a0** | |
| with:   |  | | --- | | a0 = **.** **id** **idnest2** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **.**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **idnest2 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **rept-idnest10** |  |  | | --- | | a1 = **(** **aParams** **)** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **(**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-idnest10 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **indice** **rept-idnest10** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **[**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **indice ®** | **a0** | |
| with:   |  | | --- | | a0 = **[** **arithExpr** **]** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **[**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **variable ®** | **a0** | |
| with:   |  | | --- | | a0 = **idOrSelf** **Variable2** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **id, self**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **Variable2 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **rept-idnest10** **rept-variable** |  |  | | --- | | a1 = **(** **aParams** **)** **idnest** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **[, EPSILON, .**} |  |  |  | | --- | --- | | FIRST(a1) = { | **(**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-variable ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **varidnest** **rept-variable** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **.**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **varidnest ®** | **a0** | |
| with:   |  | | --- | | a0 = **.** **id** **varidnest2** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **.**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **varidnest2 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **rept-idnest10** |  |  | | --- | | a1 = **(** **aParams** **)** **varidnest** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **(**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **localVarDecl ®** | **a0** | |
| with:   |  | | --- | | a0 = **local** **varDecl** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **local**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **relExpr ®** | **a0** | |
| with:   |  | | --- | | a0 = **arithExpr** **relOp** **arithExpr** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **(, floatLit, intLit, not, id, self, +, -**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **assignOp ®** | **a0** | |
| with:   |  | | --- | | a0 = **:=** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **:=**} | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **relOp ®** | **a0 | a1 | a2 | a3 | a4 | a5** | |
| with:   |  | | --- | | a0 = **>=** |  |  | | --- | | a1 = **>** |  |  | | --- | | a2 = **==** |  |  | | --- | | a3 = **<>** |  |  | | --- | | a4 = **<=** |  |  | | --- | | a5 = **<** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **>=**} |  |  |  | | --- | --- | | FIRST(a1) = { | **>**} |  |  |  | | --- | --- | | FIRST(a2) = { | **==**} |  |  |  | | --- | --- | | FIRST(a3) = { | **<>**} |  |  |  | | --- | --- | | FIRST(a4) = { | **<=**} |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | FIRST(a5) = { | | | | **<**} | | Ç | **a0** | **a1** | **a2** | **a3** | **a4** | **a5** | | **a0** | - | Æ | Æ | Æ | Æ | Æ | | **a1** | Æ | - | Æ | Æ | Æ | Æ | | **a2** | Æ | Æ | - | Æ | Æ | Æ | | **a3** | Æ | Æ | Æ | - | Æ | Æ | | **a4** | Æ | Æ | Æ | Æ | - | Æ | | **a5** | Æ | Æ | Æ | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **multOp ®** | **a0 | a1 | a2** | |
| with:   |  | | --- | | a0 = **and** |  |  | | --- | | a1 = **/** |  |  | | --- | | a2 = **\*** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **and**} |  |  |  | | --- | --- | | FIRST(a1) = { | **/**} |  |  |  |  | | --- | --- | --- | | FIRST(a2) = { | | **\***} | | Ç | **a0** | **a1** | **a2** | | **a0** | - | Æ | Æ | | **a1** | Æ | - | Æ | | **a2** | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **addOp ®** | **a0 | a1 | a2** | |
| with:   |  | | --- | | a0 = **or** |  |  | | --- | | a1 = **-** |  |  | | --- | | a2 = **+** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **or**} |  |  |  | | --- | --- | | FIRST(a1) = { | **-**} |  |  |  |  | | --- | --- | --- | | FIRST(a2) = { | | **+**} | | Ç | **a0** | **a1** | **a2** | | **a0** | - | Æ | Æ | | **a1** | Æ | - | Æ | | **a2** | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **sign ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **-** |  |  | | --- | | a1 = **+** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **-**} |  |  |  | | --- | --- | | FIRST(a1) = { | **+**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **statBlock ®** | **a0 | a1 | a2** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **statement** |  |  | | --- | | a2 = **{** **rept-statBlock1** **}** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **if, read, return, while, write, id, self**} |  |  |  |  | | --- | --- | --- | | FIRST(a2) = { | | **{**} | | Ç | **a0** | **a1** | **a2** | | **a0** | - | Æ | Æ | | **a1** | Æ | - | Æ | | **a2** | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **rept-statBlock1 ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **EPSILON** |  |  | | --- | | a1 = **statement** **rept-statBlock1** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **EPSILON**} |  |  |  | | --- | --- | | FIRST(a1) = { | **if, read, return, while, write, id, self**} | | Ç | **a0** | **a1** | | **a0** | - | Æ | | **a1** | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **statement ®** | **a0 | a1 | a2 | a3 | a4 | a5** | |
| with:   |  | | --- | | a0 = **variable** **assignOp** **expr** **;** |  |  | | --- | | a1 = **write** **(** **expr** **)** **;** |  |  | | --- | | a2 = **while** **(** **relExpr** **)** **statBlock** **;** |  |  | | --- | | a3 = **return** **(** **expr** **)** **;** |  |  | | --- | | a4 = **read** **(** **variable** **)** **;** |  |  | | --- | | a5 = **if** **(** **relExpr** **)** **then** **statBlock** **else** **statBlock** **;** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **id, self**} |  |  |  | | --- | --- | | FIRST(a1) = { | **write**} |  |  |  | | --- | --- | | FIRST(a2) = { | **while**} |  |  |  | | --- | --- | | FIRST(a3) = { | **return**} |  |  |  | | --- | --- | | FIRST(a4) = { | **read**} |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | FIRST(a5) = { | | | | **if**} | | Ç | **a0** | **a1** | **a2** | **a3** | **a4** | **a5** | | **a0** | - | Æ | Æ | Æ | Æ | Æ | | **a1** | Æ | - | Æ | Æ | Æ | Æ | | **a2** | Æ | Æ | - | Æ | Æ | Æ | | **a3** | Æ | Æ | Æ | - | Æ | Æ | | **a4** | Æ | Æ | Æ | Æ | - | Æ | | **a5** | Æ | Æ | Æ | Æ | Æ | - | |

|  |  |  |
| --- | --- | --- |
| |  |  | | --- | --- | | **visibility ®** | **a0 | a1** | |
| with:   |  | | --- | | a0 = **public** |  |  | | --- | | a1 = **private** |   First-Sets:   |  |  | | --- | --- | | FIRST(a0) = { | **public**} |  |  |  | | --- | --- | | FIRST(a1) = { | **private**} | |

Follow Sets:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**START**) = { | **function, constructor, class, implementation, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**START**) = { | **$**} |  |  |  | | --- | --- | | FIRST (**START**) Ç FOLLOW(**START**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**prog**) = { | **function, constructor, class, implementation, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**prog**) = { | **$**} |  |  |  | | --- | --- | | FIRST (**prog**) Ç FOLLOW(**prog**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-prog0**) = { | **function, constructor, class, implementation, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-prog0**) = { | **$**} |  |  |  | | --- | --- | | FIRST (**rept-prog0**) Ç FOLLOW(**rept-prog0**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**opt-classDecl2**) = { | **isa, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**opt-classDecl2**) = { | **{**} |  |  |  | | --- | --- | | FIRST (**opt-classDecl2**) Ç FOLLOW(**opt-classDecl2**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-opt-classDecl22**) = { | **,, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-opt-classDecl22**) = { | **{**} |  |  |  | | --- | --- | | FIRST (**rept-opt-classDecl22**) Ç FOLLOW(**rept-opt-classDecl22**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-classDecl4**) = { | **private, public, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-classDecl4**) = { | **}**} |  |  |  | | --- | --- | | FIRST (**rept-classDecl4**) Ç FOLLOW(**rept-classDecl4**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-implDef3**) = { | **function, constructor, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-implDef3**) = { | **}**} |  |  |  | | --- | --- | | FIRST (**rept-implDef3**) Ç FOLLOW(**rept-implDef3**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-funcBody1**) = { | **if, read, return, while, write, id, self, local, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-funcBody1**) = { | **}**} |  |  |  | | --- | --- | | FIRST (**rept-funcBody1**) Ç FOLLOW(**rept-funcBody1**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rightrec-arithExpr**) = { | **+, -, or, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rightrec-arithExpr**) = { | **), ,, ;, <=, <>, ==, >, >=, ]**} |  |  |  | | --- | --- | | FIRST (**rightrec-arithExpr**) Ç FOLLOW(**rightrec-arithExpr**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rightrec-term**) = { | **\*, /, and, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rightrec-term**) = { | **), ,, ;, <=, <>, ==, >, >=, ], +, -, or**} |  |  |  | | --- | --- | | FIRST (**rightrec-term**) Ç FOLLOW(**rightrec-term**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**factor2**) = { | **(, [, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**factor2**) = { | **), ,, ;, <=, <>, ==, >, >=, ], +, -, or, \*, /, and, .**} |  |  |  | | --- | --- | | FIRST (**factor2**) Ç FOLLOW(**factor2**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**VarOrFunc**) = { | **., EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**VarOrFunc**) = { | **), ,, ;, <=, <>, ==, >, >=, ], +, -, or, \*, /, and**} |  |  |  | | --- | --- | | FIRST (**VarOrFunc**) Ç FOLLOW(**VarOrFunc**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-varDecl3**) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-varDecl3**) = { | **;**} |  |  |  | | --- | --- | | FIRST (**rept-varDecl3**) Ç FOLLOW(**rept-varDecl3**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**relExprRest**) = { | **<=, <>, ==, >, >=, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**relExprRest**) = { | **), ,, ;**} |  |  |  | | --- | --- | | FIRST (**relExprRest**) Ç FOLLOW(**relExprRest**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**fParams**) = { | **id, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**fParams**) = { | **)**} |  |  |  | | --- | --- | | FIRST (**fParams**) Ç FOLLOW(**fParams**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-fParams3**) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-fParams3**) = { | **), ,**} |  |  |  | | --- | --- | | FIRST (**rept-fParams3**) Ç FOLLOW(**rept-fParams3**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-fParams4**) = { | **,, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-fParams4**) = { | **)**} |  |  |  | | --- | --- | | FIRST (**rept-fParams4**) Ç FOLLOW(**rept-fParams4**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-fParamsTail4**) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-fParamsTail4**) = { | **), ,**} |  |  |  | | --- | --- | | FIRST (**rept-fParamsTail4**) Ç FOLLOW(**rept-fParamsTail4**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**aParams**) = { | **(, floatLit, intLit, not, id, self, +, -, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**aParams**) = { | **)**} |  |  |  | | --- | --- | | FIRST (**aParams**) Ç FOLLOW(**aParams**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-aParams1**) = { | **,, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-aParams1**) = { | **)**} |  |  |  | | --- | --- | | FIRST (**rept-aParams1**) Ç FOLLOW(**rept-aParams1**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**idnest2**) = { | **(, [, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**idnest2**) = { | **), ,, ;, <=, <>, ==, >, >=, ], +, -, or, \*, /, and, ., :=**} |  |  |  | | --- | --- | | FIRST (**idnest2**) Ç FOLLOW(**idnest2**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-idnest10**) = { | **[, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-idnest10**) = { | **), ,, ;, <=, <>, ==, >, >=, ], +, -, or, \*, /, and, ., :=**} |  |  |  | | --- | --- | | FIRST (**rept-idnest10**) Ç FOLLOW(**rept-idnest10**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**Variable2**) = { | **(, [, EPSILON, .**} |  |  |  | | --- | --- | | FOLLOW(**Variable2**) = { | **), :=**} |  |  |  | | --- | --- | | FIRST (**Variable2**) Ç FOLLOW(**Variable2**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-variable**) = { | **., EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-variable**) = { | **), :=**} |  |  |  | | --- | --- | | FIRST (**rept-variable**) Ç FOLLOW(**rept-variable**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**varidnest2**) = { | **(, [, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**varidnest2**) = { | **), :=, .**} |  |  |  | | --- | --- | | FIRST (**varidnest2**) Ç FOLLOW(**varidnest2**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**statBlock**) = { | **{, if, read, return, while, write, id, self, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**statBlock**) = { | **else, ;**} |  |  |  | | --- | --- | | FIRST (**statBlock**) Ç FOLLOW(**statBlock**) = | Æ | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | FIRST (**rept-statBlock1**) = { | **if, read, return, while, write, id, self, EPSILON**} |  |  |  | | --- | --- | | FOLLOW(**rept-statBlock1**) = { | **}**} |  |  |  | | --- | --- | | FIRST (**rept-statBlock1**) Ç FOLLOW(**rept-statBlock1**) = | Æ | |