

$$(-1 - -2) * -(3 / 5)$$

**Method** *evaluate*(**In:** *pExpr* as an infix expression) **Returns** *Double*

Create *operatorStack* -- Stores *Operators*

Create *operandStack* -- Stores *Operands*

**While** end of *pExpr* has not been reached **Do**

Scan next *token* in *pExpr* -- The type of *token* is *Token*

**If** *token* is an operand **Then**

Convert *token* to *Operand* object named *number*

*operandStack.push(number)*

**ElseIf** *token* is an **InstanceOf** *LeftParen* **Then**

Convert *token* to *LeftParen* object named *paren*

*operatorStack.push(paren)*

**ElseIf** *token* is an **InstanceOf** *RightParen* **Then**

**While not** *operatorStack.peek()* is an **InstanceOf** *LeftParen* **Do** *topEval()*

*operatorStack.pop()* -- Pops the *LeftParen*

**ElseIf** *token* is *Negation*, *Addition*, *Subtraction*, *Multiplication*, or *Division* **Then**

Convert *token* to *Operator* object named *operator*

**While** *keepEvaluating()* returns **True** **Do** *topEval()*

*operatorStack.push(op)*

**End While**

**While not** *operatorStack.isEmpty()* **Do** *topEval()*

**Return** *operandStack.pop()*

**End Method** *evaluate*

**Method** *keepEvaluating()* **Returns** **True** or **False**

**If** *operatorStack.isEmpty()* **Then Return** **False**

**Else Return** *stackPrecedence(operatorStack.peek())*  $\geq$  *precedence(operator)*

**End Method** *keepEvaluating*

**Method** *topEval()* **Returns** **Nothing**

$right \leftarrow operandStack.pop()$

$operator \leftarrow operatorStack.pop()$

**If** *operator* is *Negation* **Then** *operandStack.push(-right)*

**Else**  $left \leftarrow operandStack.pop()$

**If** *operator* is *Addition* **Then** *operandStack.push(left + right)*

**ElseIf** *operator* is *Subtraction* **Then** *operandStack.push(left - right)*

**ElseIf** *operator* is *Multiplication* **Then** *operandStack.push(left \* right)*

**Else** *operandStack.push(left / right)*

**End If**

**End Method** *topEval*

**Method** *precedence(In: Operator pOperator)* **Returns** **Int**

**If** *pOperator* is *LeftParen* **Then Return** 5

**ElseIf** *pOperator* is *Negation* **Then Return** 4

**ElseIf** *pOperator* is *Multiplication* or *Division* **Then Return** 3

**ElseIf** *pOperator* is *Addition* or *Subtraction* **Then Return** 2

**Else Return** 1

**End Method** *precedence*

```
Method stackPrecedence(In: Operator pOperator) Returns Int  
    If pOperator is LeftParen Then Return 0  
    ElseIf pOperator is Negation Then Return 4  
    ElseIf pOperator is Multiplication or Division Then Return 3  
    ElseIf pOperator is Addition or Subtraction Then Return 2  
    Else Return 1  
End Method stackPrecedence
```