CS 171 Assignment 3

1. Give the tilde approximations for the following quantities.
   a) 1/n + 1
   b) f(n) = n^8 + 3n – 4
   c) f(n) = n + n log n

2. Write a program that, given two sorted arrays of n int values, prints all elements that appear in both arrays, in sorted order. The running time of your program should be proportional to n in the worst case.

```
private static void printElementsInBothArrays(int[] array1, int[] array2) {
    \\fill your code here …
}
```

3. Suppose that an intermixed sequence of stack push and pop operations are performed. The pushes push the integers 0 through 9 in order; the pops print out the return value. Which of the following sequence could not occur?
   a) 2 1 4 3 6 5 8 7 9 0
   b) 4 3 2 1 0 9 8 7 6 5
   c) 4 6 8 7 5 3 2 9 0 1

4. Write a program that converts an arithmetic expression from infix to postfix.

```
private static String infixToPostfix(String infixExpression) {
        Stack<String> operands = new Stack<>();
        Stack<String> operators = new Stack<>();
        String[] inputValues = infixExpression.split("\\s");
        \\Fill in your code here ….
        return operands.pop();
}
```

5. Write a program named evaluatePostfix that takes a postfix expression from standard input, evaluates it and prints the value.

```
private static int evaluatePostfix(String postfixExpression) {
        Stack<String> operands = new Stack<>();
        Stack<String> operators = new Stack<>();
        String[] values = postfixExpression.split("\\s");
        \\Fill in your code here….
        return Integer.parseInt(operands.pop());
}
```